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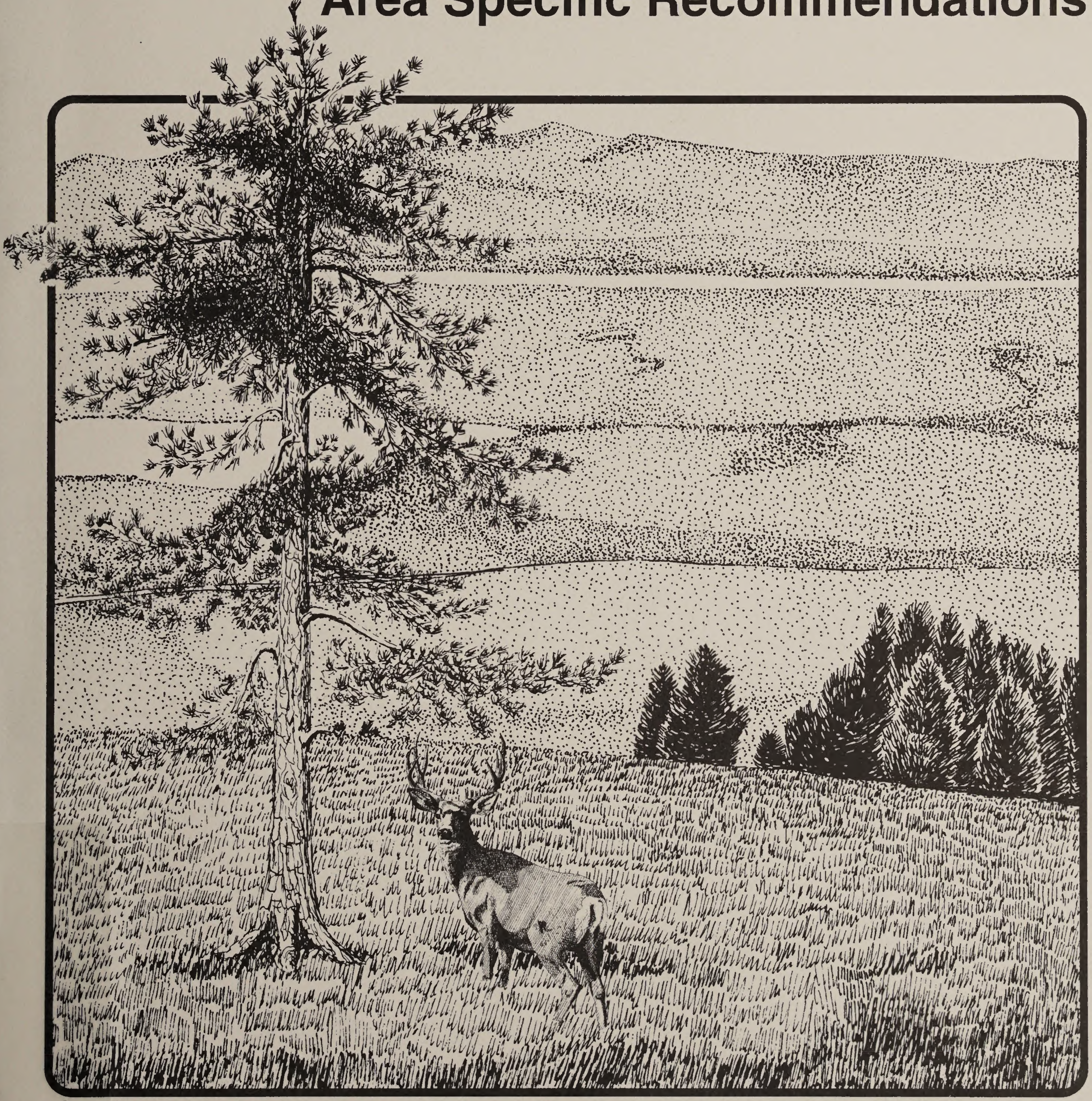
September 1991

MONTANA STATEWIDE WILDERNESS STUDY REPORT
Volume II — Wilderness Study Area Specific Recommendations



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Montana Statewide Wilderness Study Report

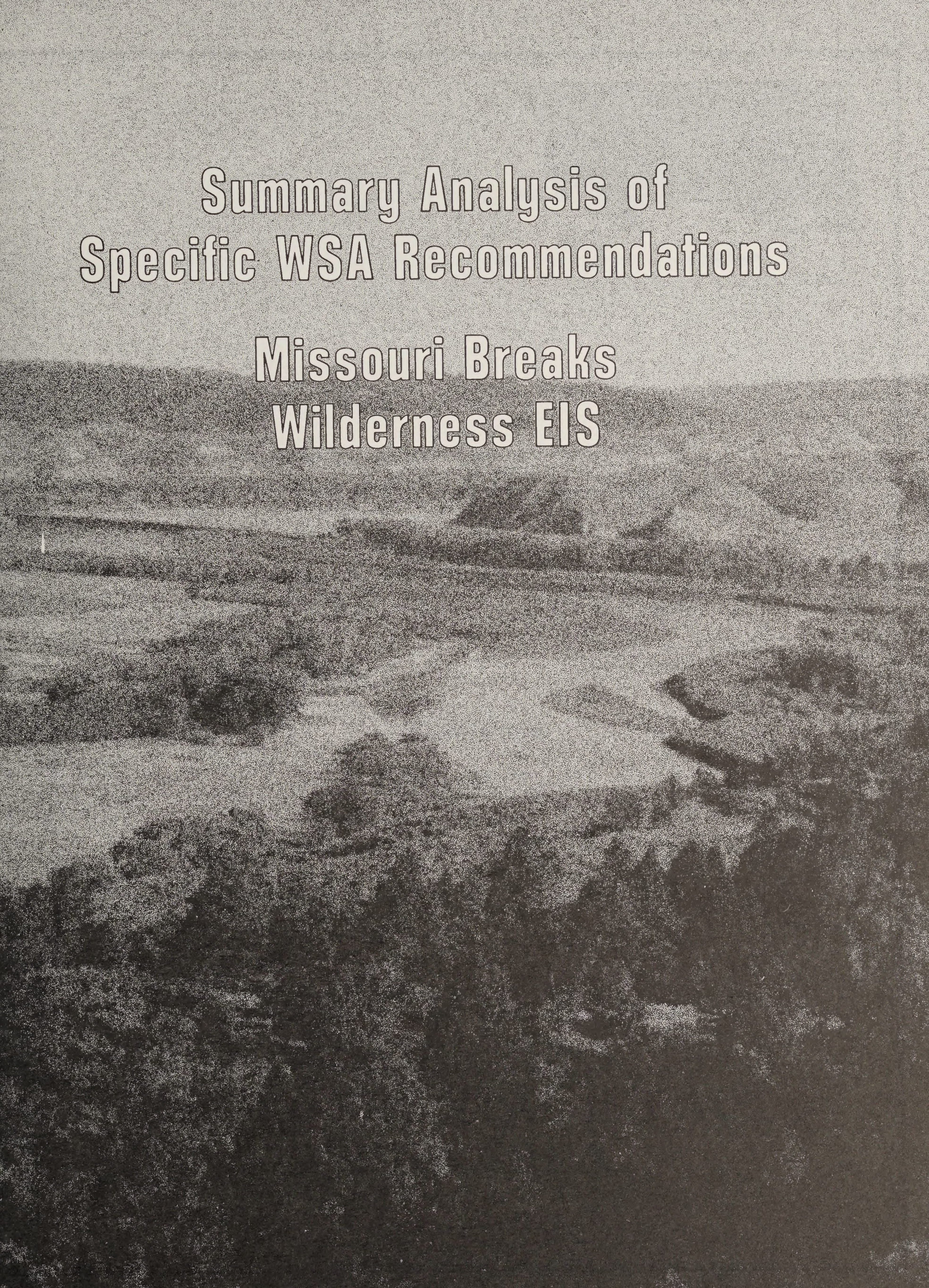
Volume II
Wilderness Study Area Specific Recommendations

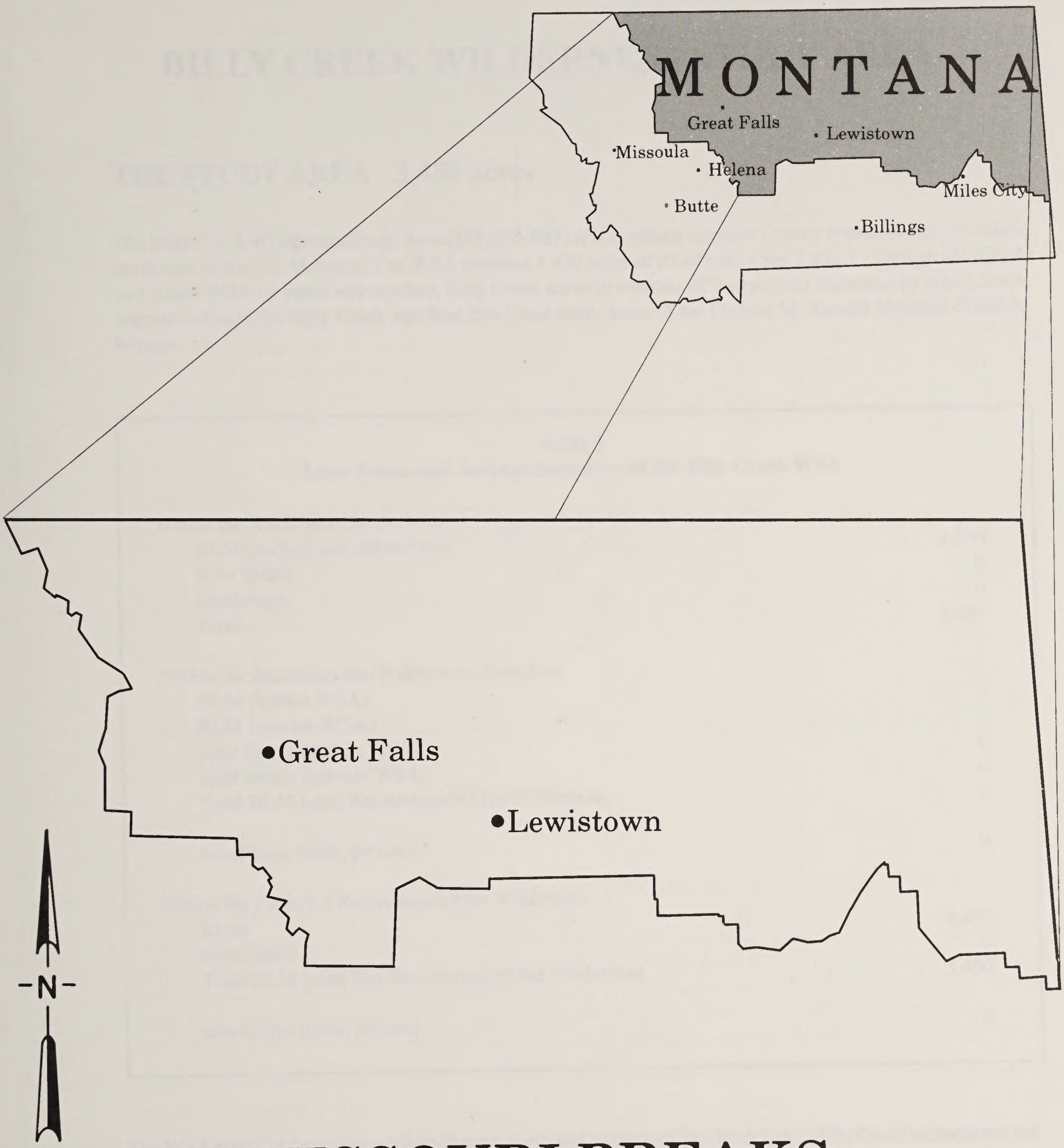
September 1991

Department of the Interior
Bureau of Land Management

Summary Analysis of Specific WSA Recommendations

Missouri Breaks Wilderness EIS




MONTANA
Great Falls
Lewistown
Missoula
Helena
Butte
Billings
Miles City
Great Falls
Lewistown
N

MISSOURI BREAKS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

BILLY CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 3,450 acres

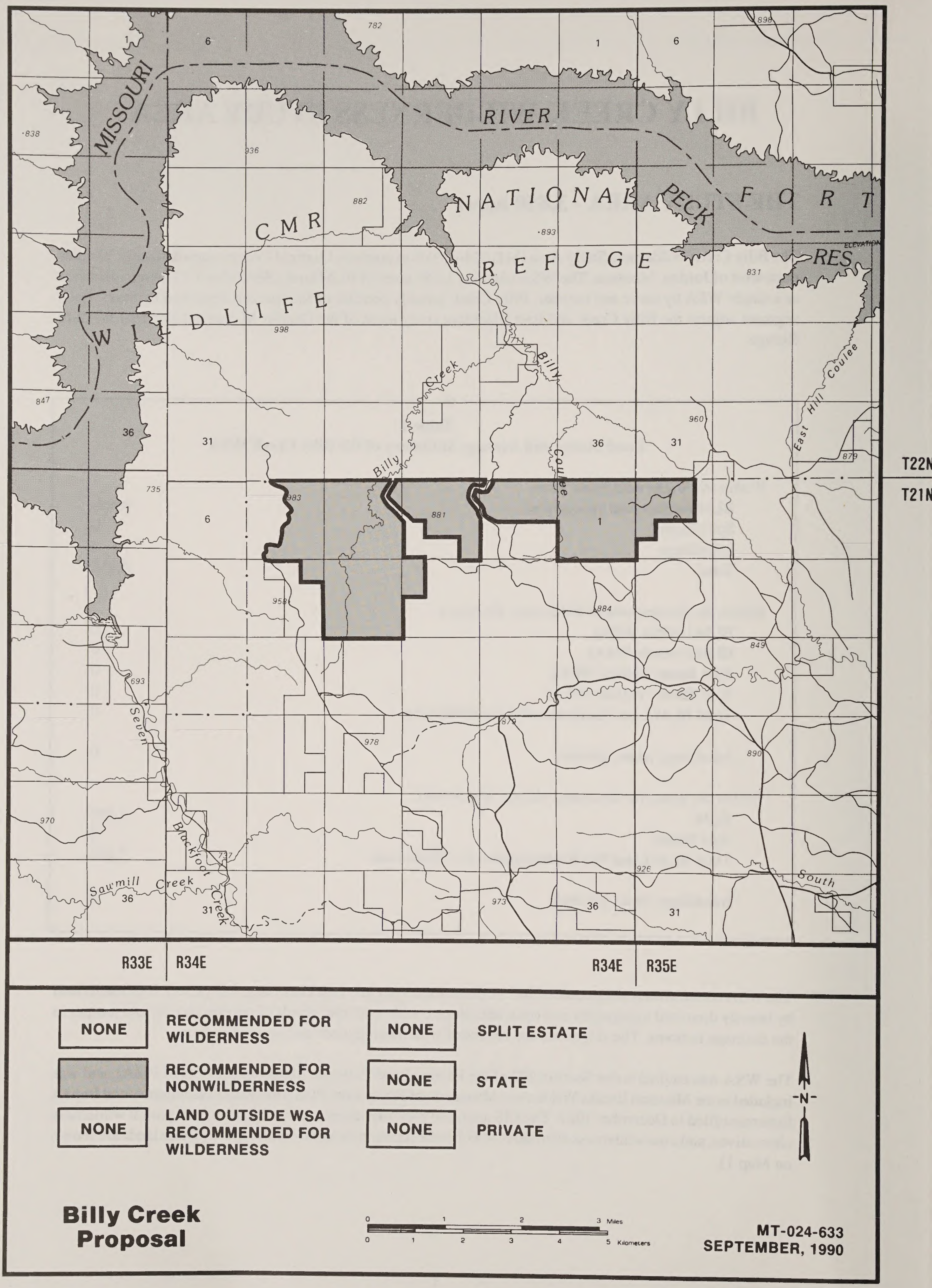
The Billy Creek Wilderness Study Area (MT-024-633) is in northern Garfield County approximately 30 miles northwest of Jordan, Montana. The WSA contains 3,450 acres of BLM land. (See Table 1.) Though identified as a single WSA by name and number, Billy Creek actually consists of four parcels separated by roads. Each segment adjoins the Billy Creek and East Blackfoot study areas of the Charles M. Russell National Wildlife Refuge.

Table 1
Land Status and Acreage Summary of the Billy Creek WSA

Within the Wilderness Study Area	
BLM (surface and subsurface)	3,450
Split Estate	0
Inholdings	0
Total	3,450
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	3,450
Split Estate	0
Total BLM Land Not Recommended for Wilderness	3,450
Inholdings (state, private)	0

The WSA contains three deep coulees that run north and empty into Fort Peck Lake. Billy Creek is characterized by heavily dissected topography and open bare slopes, with moderate stands of ponderosa pine and juniper in the drainage bottoms. The ridgelines are vegetated with range grasses and native legumes.

The WSA was studied under Section 202 of the Federal Land Policy & Management Act (FLPMA), and was included in the Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact Statement filed in December 1987. The EIS analyzed four alternatives: all wilderness; two partial wilderness alternatives; and a no-wilderness alternative which is the recommendation of this report. (These lands are shown on Map 1).


MISSOURI
RIVER
CMR
NATIONAL
WILDLIFE
REFUGE
FORT PECK RES
ELEVATION
Billy Creek
Billy Coulee
East Hill Coulee
Seven
Blackfoot Creek
Sawmill Creek
South
T22N
T21N
R33E
R34E
R34E
R35E
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Billy Creek Proposal

MT-024-633
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
3,450 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area wilderness and to release it for uses other than wilderness. The All Wilderness alternative is the environmentally preferred alternative. The recommendation, while not the environmentally preferred alternative, will be implemented in a manner that will use all practical means to avoid environmental impacts. (See Map 1).

The major reason for the recommendation not to designate the WSA wilderness is that overall, wilderness quality was lacking. The WSA was determined not to contain either outstanding opportunities for solitude or primitive and unconfined recreation and does not merit inclusion in the national wilderness preservation system. Though less than 5,000 acres in size, Billy Creek met the minimum requirements for wilderness study because of its location adjacent to U.S. Fish and Wildlife Service lands recommended for wilderness designation.

A key conflict within the WSA involves three roads that cut through the unit. These human imprints would remain open if the area were designated wilderness and would detract from the wilderness values of solitude and primitive recreation. Controlling ORV use off these roads, especially during hunting season, would constitute a significant long-term administrative problem for the Bureau.

Even though the area would not be designated as wilderness, the existing natural values of the area are projected to be unaffected as no surface disturbing activities of any kind are proposed for the area.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: For the most part Billy Creek WSA appears natural. Scattered developments inside the WSA are associated with livestock grazing. Two reservoirs adversely affect the eastern part of Billy Creek as they are in an open area and a recent fire has burned concealing vegetation. A fire trail 1.5 miles long also reduces apparent naturalness in this part of the WSA. Though identified by a single WSA name and number, Billy Creek consists of four roadless tracts segmented by three roads which form internal boundaries. The presence of these roads reduces the naturalness of the WSA, particularly when viewed as a single study area. The highest elevation in this WSA is along the northwestern boundary (3,195') and the lowest elevation is where Billy Creek leaves the unit (2,575').

Solitude: The WSA does not present outstanding opportunities for solitude. Rectangular in shape, Billy Creek WSA measures five miles by one mile and is in an east-west axis. The western half of the WSA is composed of deep drainages fringed with timber. These isolated pockets offer good opportunities for solitude. The eastern half contains more rolling terrain. Recent wildfires have changed the landscape character by opening up vistas. The sense of solitude in this part of the WSA is adversely affected by offsite imprints of humans. The average visitor will most likely be aware of farm machinery, ranch buildings, cropland, and county road traffic. The WSA is under a military flight route, so periodic distruptions to solitude should be expected for the unit.

Primitive and Unconfined Recreation: The WSA does not contain outstanding opportunities for primitive and unconfined recreation.

Primitive recreational opportunities in the WSA would include hiking, camping, backpacking, hunting, sightseeing and nature photography. Limited hunting and sightseeing from vehicles are the present recreational uses of the area.

Several roads provide recreational access to the WSA, but all pass through private lands and permission is required to access federal lands.

Rain or snow limits the effective season of use in the WSA to the summer months. Drinkable water is unavailable. Rattlesnakes and steep cliffs present hazards to the unwary visitor.

Special Features: Special features include the attractive Missouri breaks topography. Timbered prairie grass slopes plus the muted, banded colors of the open clay hills present a pleasant panorama to the viewer looking toward the Fort Peck Reservoir.

Fossils in the Hell Creek and Tullock formations are of value to paleontologists. Skeletons of dinosaurs and the remains of smaller reptiles, fish, early marsupials and mammals have been discovered in the vicinity of the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Great Plains Shortgrass Prairie Province/Grama-Wheatgrass-Needlegrass 3110/57. There is currently one representative in the National Wilderness Preservation System (NWPS) and thirteen other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
	MONTANA			
	1	20,892	13	225,427

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four- state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas are designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

While no single management conflict led to a conclusion that this WSA could not be effectively managed as a wilderness area, the potential conflicts considered together make the area unmanageable. The following factors were considered in determining the long-term wilderness management potential of the Billy Creek WSA.

Approximately 55.9% of the WSA contains pre-FLPMA oil and gas leases which must be honored until they expire. These leased areas provide a significant management problem as they can be explored and developed even if such activity impairs wilderness values. It is difficult to estimate the impact on manageability, as the potential for oil and gas is rated low to moderate based on information available.

The addition of all or any portion of this WSA to the CMR Refuge would create new management problems. The three internal roads would constitute a long- term management problem associated with vehicular access through the WSA.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of oil is rated low by BLM geologists, while there is a moderate probability of finding natural gas in this unit. All of the WSA is either leased or has pending leases for oil and gas. Approximately 55% of the acreage in the unit is under pre-FLPMA oil and gas leases and 17% is under post-FLPMA leases.

No other energy or mineral resource values have been identified in this WSA. There is no production of any mineral or geothermal resource in the unit and none is projected for the future.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered in the EIS.

Table 4
Comparative Summary of Impacts - Billy Creek

Issues	Proposed - No Wilderness	Partial - Alternative 1	Partial - Alternative 2	All Wilderness
Impacts on Wilderness	The wilderness values of the WSA would not be impacted.	The wilderness values of the westernmost roadless area recommended as suitable would be retained. The wilderness values of the eastern three roadless areas would be retained. of the eastern three roadless areas would be retained.	The wilderness values on the 550 acres recommended as suitable would be maintained. The wilderness values on the 2,900 acres recommended as nonsuitable would be maintained.	The wilderness values of naturalness would be slightly enhanced on the eastern end due to the revegetation of a vehicle way. The outstanding opportunities for solitude in the WSA would be enhanced by the reduction of motorized vehicle use.
Impacts on Big Game Population Levels - Mule Deer	There would be no impact on the mule deer population.	Mule deer population levels would not be impacted.	Mule deer population levels would not be impacted.	Mule deer population levels would not be impacted.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock management or the maintenance of range projects.	For both the suitable and nonsuitable portions there would be no impacts.	For both the suitable and nonsuitable portions there would be no impacts.	Permittees would incur additional costs of $60 and 15 hours of labor time annually.
Impacts on Recreation ORV Use Levels	There would be no impact on recreational use levels.	There would be no impact on recreational use levels.	There would be no impact on recreational use levels.	Recreational use levels would decline from 25 RVDs to zero.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes - such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance - will be forthcoming under wilderness designation, though they would not occur under present BLM policy. Ranchers also are concerned about changes in ranch loan and sale values that could occur as a result of wilderness designation. Many ranchers feel their operations would become less viable.

Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low. The substitution of horses for casual vehicle use might increase annual expenses by approximately fifteen hours of labor and $60. The potential loss in ranch loan values for long-term loans could be as much as $39,029, depending on the lender. Three operators have permits in this area and one would incur most of these potential extra expenses.

Revenues to the county from any oil or gas production forgone because of wilderness designation would not be significant, based on present revenue generated in the surrounding breaks area and the projection that there would be no oil or gas development.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process.

Five specific comments favored wilderness designations for the Billy Creek WSA. Three respondents stated that the area included in BLM's Partial Wilderness Alternative 1 is contiguous to the CMR's East Seven Blackfoot study area and contains one of the most incredibly rugged drainages anywhere along the CMR in the Billy Creek area. One respondent supported wilderness for all of the Billy Creek WSA stating that it borders the CMR and perhaps is our last chance to preserve a really large area of the northern plains. One respondent recommends Segments A and B because they are contiguous with both the CMR and the BLM Seven Blackfoot WSA and would extend and supplement these areas.

One respondent specifically opposed the designation of Billy Creek as wilderness but provided no specific rationale.

Two federal agencies commented on the Billy Creek WSA. The Department of the Army's Corps of Engineers stated that BLM's alternatives were reasonable and well justified. The only concern was that designation of areas adjacent to Fort Peck project lands not restrict recreational access. The U.S. Fish & Wildlife Service recommends that BLM's Partial Wilderness Alternative 1 including 1,650 acres on the west end of the WSA be recommended suitable, because it is a physiographic and ecological link with lands in the CMR recommended for wilderness.

No state or local government entities submitted any WSA-specific comments.

SEVEN BLACKFOOT WILDERNESS STUDY AREA

THE STUDY AREA - 20,250 ACRES

The Seven Blackfoot Wilderness Study Area (MT-024-657) is in northern Garfield County, 30 miles northwest of Jordan, Montana. The WSA consists of about 20,250 acres of BLM lands and a 640-acre state inholding. (See Table 1.) Though the WSA is identified by a single name, it actually consists of three roadless segments separated by two roads. The northwest roadless area contains 3,950 acres. The northeast roadless area contains 4,930 acres. The third portion makes up the entire southern part of the WSA and contains 11,450 acres. BLM property surrounds 371 acres of private land.

Table 1
Land Status and Acreage Summary of the Seven Blackfoot Study Area

Within the Wilderness Study Area	
BLM (surface and subsurface)	20,330
Split Estate (BLM surface only)	0
Inholdings (state, private*)	640
Total	20,970
Within the Recommended Wilderness Boundary	
BLM (within WSA)	5,710
BLM (outside WSA)	80
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	5,790
Inholdings (state, private*)	0
Within the Area Not Recommended for Wilderness	
BLM	14,540
Split Estate	0
Total BLM Land not Recommended for Wilderness	14,540
Inholdings (state, private *)	640

*The three roadless areas that constitute this WSA surround a private parcel of 371 acres. Since road access exists, the private land is not considered an inholding. Approximately two-thirds of this land is in federal mineral ownership.

The northwest area is bounded on the north by the Charles M. Russell National Wildlife Refuge (CMRNWR), on the south by North Sawmill Creek Road and private land, on the east by Seven Blackfoot Trail, and on the west by private land. The northeast area is bounded on the north by the CMR Refuge, on the west by the refuge, Seven Blackfoot Trail and private land, on the east by private land and the Billy Creek Road, and on the south by Seven Blackfoot Trail. The southern area is bounded on the north by North Sawmill Creek Road, private land and Seven Blackfoot Trail, and by private land elsewhere.

The WSA is contiguous to two Charles M. Russell National Wildlife Refuge wilderness study areas. The northeast roadless area is contiguous to the CMRNWR East Seven Blackfoot study area of 12,184 acres. The northwest roadless area is contiguous to the CMRNWR West Seven Blackfoot study area of 7,096 acres. The President has recommended that the CMRNWR areas be designated wilderness.

The WSA consists of highly dissected terrain dropping from 3,282 feet in elevation in the southwest to 2,440 feet on the north boundary. A rim around the WSA is approximately 3,000 feet in elevation. The WSA contains a single deep drainage, Seven Blackfoot Creek (which empties into Fort Peck Lake), and a number of side drainages. In effect the WSA is a large basin surrounded by benches of private land. The area is characterized by heavily dissected topography, open bare slopes, and dense stands of ponderosa pine and juniper in the drainage bottoms. The ridgelines are vegetated with range grasses and native legumes.

The WSA was studied under Sections 603 and 202 of the Federal Land Policy & Management Act (FLPMA), and was included in the Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact Statement filed in December 1987. The two northern roadless areas (each of less than 5,000 acres) were studied under Section 202 and the southern segment was studied under Section 603. The EIS analyzed four alternatives: a partial-wilderness alternative which is the recommendation in this report; a no-wilderness alternative; another partial-wilderness option; and an all-wilderness alternative.

Since the Missouri Breaks Wilderness EIS was completed, 80 acres of privately-owned land was acquired by the BLM which is now recommended for wilderness designation. (See map.)

RECOMMENDATION AND RATIONALE -

5,710 acres recommended for wilderness

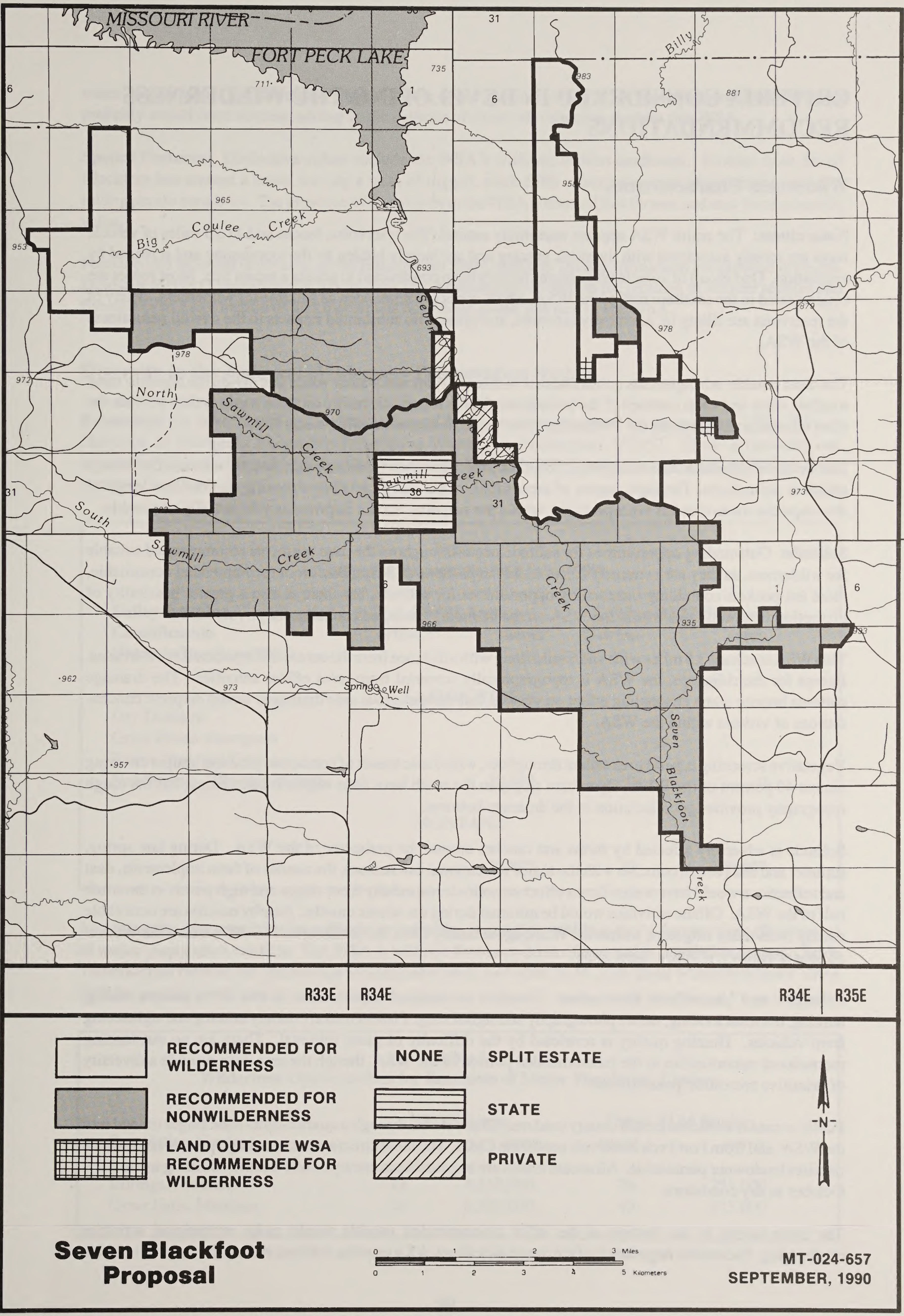
14,540 acres recommended for nonwilderness

Part of both the northeast and northwest segments of the study area adjacent to the CMRNWR and containing 5,710 acres are recommended for wilderness designation and 14,540 acres in the remaining segment are recommended to be released for uses other than wilderness.

The all-wilderness alternative is the environmentally preferred alternative. Although the recommendation is not the environmentally preferred alternative, it would be implemented to use all practical means to avoid or minimize environmental impacts.

The recommendation for wilderness designation for 5,710 acres is based on high wilderness quality, limited actual and potential conflicts with other resource uses, and potential for long-term management as wilderness, in conjunction with the Charles M. Russell Wildlife Refuge East Seven Blackfoot and West Seven Blackfoot study areas. The lands in each segment are contiguous to one of the CMR wilderness study areas. Both segments contain the heads of drainages that continue through the CMR to the Fort Peck Reservoir and are logical extensions of the CMR units. Both enhance the wilderness characteristics contained in the CMR units.

The recommendation to not designate the remaining 14,540 acres is based on substantially lower-quality wilderness values and a variety of resource conflicts. Naturalness and solitude opportunities in the southern part of the WSA and portions of the two northern roadless area are reduced by a number of intrusions including sights and sounds of farming activities on surrounding privately owned lands. Naturalness and solitude are not as high as in the segments recommended for wilderness and these areas would not significantly enhance the quality or diversity of the National Wilderness Preservation System.


MISSOURI RIVER
FORT PECK LAKE
Billy
T22N
T21N
T21N
T20N
Big Coulee Creek
North
Sawmill Creek
Sawmill Creek
South Sawmill Creek
Seven Blackfoot Creek
Seven Blackfoot Creek
Spring Well
36
31
6
1
735
711
983
881
965
953
693
958
978
879
972
970
973
966
935
933
962
957
R33E
R34E
R34E
R35E
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
PRIVATE
N
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Seven Blackfoot Proposal

MT-024-657
SEPTEMBER, 1990

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The entire WSA appears essentially natural. The reservoirs, fences and 11.25 miles of vehicle ways are mostly associated with livestock grazing and are largely hidden by the topography and screened by vegetation. One group of vehicle ways seems to have been constructed to access a recent fire. Most routes are concentrated in the southern half of the WSA, which is not recommended as suitable for wilderness. Many of the reservoirs are silting in, are mostly screened, and present no substantial impacts to the overall naturalness of the WSA.

The most notable infringements on naturalness in this WSA are the bladed roads that divide the unit into three roadless areas and form portions of the boundaries. There is periodic traffic on these roads as they provide the most convenient route from the Wilson Ranch to grain fields on the WSA's east side.

Due to the location of most developments, boundary modifications would not significantly increase the WSA's apparent naturalness. The high degree of topographic relief and vegetative screening and the low levels of development mean that the average visitor would not perceive human imprints as substantially noticeable.

Solitude: Outstanding opportunities for solitude occur throughout the two segments recommended suitable for wilderness, as they are extremely isolated. In the portions of Seven Blackfoot recommended nonsuitable, there are pockets containing outstanding opportunities for solitude, but there is also a greater possibility of disruption from activities within the WSA on the boundary roads, and on adjacent private lands.

This WSA is at least 3.5 miles wide and 6 miles long with a distance from the center to the perimeter of 2-3 miles. Except for the ridgetops, the WSA is topographically screened from most offsite activities. The drainage patterns impose some channeling effect on visitors, but the numerous side drainages would disperse concentrations of visitors within the WSA.

Vegetative screening is good to excellent throughout, with dense stands of ponderosa pine and juniper covering almost 40 percent of the WSA. Open bare slopes in the south have little vegetative screening, but the rough topography provides good isolation in the drainage bottoms.

Solitude is adversely affected by farms and ranches around the perimeter of the WSA. During late spring, summer and fall (which coincide with the major recreational use season), the sounds of farm implements, dust and reflections would have a significant effect on solitude, especially from ridges and high points in the south half of the WSA. Offsite activities would be minimal during the winter months. Nearby ranches are noticeable mainly from many ridgetops within the WSA, again mostly from the southern half of the WSA. This WSA is no longer below a military flight route.

Primitive and Unconfined Recreation: Primitive recreational opportunities in this WSA include hiking, hunting, horseback riding, nature photography and sightseeing. Present uses are mainly hunting and sightseeing from vehicles. Hunting quality is restricted by the difficulty of game retrieval. There are no outstanding recreational opportunities in the recommended portion of the WSA, though the area does provide a diversity of primitive recreation possibilities.

Public access is available from a county road near Chalk Butte, through a quarter-mile-wide finger of land into the WSA, and from Fort Peck Reservoir across the CMR. The most direct access is through private land, which requires landowner permission. All access routes are impassable in snowy or wet weather, limiting use to July-October in dry conditions.

The steep terrain in the portion of the WSA recommended suitable would make recreational activities challenging. Successful negotiation of the Seven Blackfoot WSA requires stamina and a good map. No notable water is available. The extremely rugged nature of the portion of the WSA recommended for wilderness probably would limit visitors, adding to the solitude of those who chose to explore this WSA.

Special Features: Distinctive values include the WSA's wild and broken landforms. Erosion from Seven Blackfoot has created a basin, leaving a vista of rugged, stark cliffs offset by clumps of ponderosa pine and rolling prairie meadows. The presence of Douglas fir in the WSA is unusual this far east and may be of scientific value.

Fossils could be found in the area, as the fossiliferous Hell Creek and Tullock formations are exposed in places. Dinosaur fossils (Tyrannosaurus, Triceratops and Anatosaurus) as well as the remains of smaller reptiles and fish and even early mammals and marsupials have been found just east of the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Shortgrass Prairie Province/Grama-Wheatgrass-Needlegrass 3/10/57. There is currently one representative in the National Wilderness Preservation System (NWPS) and thirteen other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	208,627

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	areas	acres	areas	acres
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas are designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U.S. Fish and Wildlife Service which have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

The northern segments of Seven Blackfoot WSA that are recommended suitable for wilderness could be effectively managed as wilderness. Boundaries are definable on the ground and there would be no conflicts with other resource uses. Contiguity with the CMR wilderness study units is a consideration in the long-term manageability of the segments recommended suitable. Designation would expand the size of the wilderness area, would increase opportunities for primitive recreation and solitude, and would provide a logical physiographic and ecological link between the lands managed by the BLM and the Fish & Wildlife Service.

The nonsuitable portion of the WSA is manageable as wilderness. The state inholding is used primarily for domestic grazing and no developments are anticipated. A primitive trail provides access to the northwest corner of the state section. The 371 acres of private land have access from the roads that divide the WSA into three segments.

Energy and Mineral Resource Values

The U.S. Geological Survey and U.S. Bureau of Mines have prepared a mineral assessment report on the Seven Blackfoot WSA. Their report indicates portions of the area have a high potential for coal. Other parts of the area have a moderate potential for coal and kaolinite and other parts have a low potential for montmorilbnite, sand, gravel, and placer gold. The entire area has a moderate potential for oil and gas, and a low potential for all metallic minerals, bentonite and geothermal energy.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for all the alternatives considered, including designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Seven Blackfoot

Issues	Proposed - No Wilderness	Partial - Alternative 1	Partial - Alternative 2	All Wilderness
Impacts on Wilderness Values	The wilderness values of the 5,710 acres recommended as suitable and of the 14,540 acres recommended as nonsuitable would be retained.	The wilderness values of naturalness, outstanding opportunities for solitude on 90% of the WSA, primitive recreation and supplemental values would be retained.	Naturalness would be enhanced on 5% and opportunities for solitude would be enhanced on 6% of the 11,030 acres recommended as suitable. Wilderness values would be retained on the 9,220 acres recommended as nonsuitable.	The existing wilderness values would be retained. Naturalness on 2% of the WSA and opportunities for solitude on 5% of the WSA would be enhanced.

Impacts on Big Game Population Levels - Mule Deer	There will be no impact on mule deer population levels.	There will be no impact on mule deer population levels.	The mule deer population level is expected to increase to a range of 140 to 480.	Mule deer population levels would increase from a range of 135 to 465 to a range of 140 to 500.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impacts on livestock management or project maintenance levels.	There would be no impacts.	There would be no impact on livestock management and existing range project maintenance levels. However, seven operators costs and labor time would rise by $395 and 105 hours annually.	The permittees would incur annual increased costs of $540 and 145 hours of labor time.
Impacts on Construction of New Range Improvements	There would be no impact on the construction of three reservoirs and three miles of fence.	There would be no impact on the construction of three reservoirs and three miles of fence.	There would be no impact on the construction of three reservoirs and three miles of fence.	There would be no impact on the construction of three reservoirs and three miles of fence.
Impacts on Recreation ORV Use Levels	There would be no impact on ORV use levels.	There would be no impact on ORV use levels.	Recreation ORV use would decline from 200 RVDs to 25 annually.	Recreational ORV use levels would decline from 200 RVDs annually to zero.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes — such as cuts in AUMs or policy modifications that prevent range improvements — will be forthcoming under wilderness designation, though they would not occur under BLM policy. Ranchers are also concerned about the changes in ranch loans and sale values that could occur as a result of wilderness designation. Many ranchers feel their operation would be less viable than it was before designation.

There are no vehicle ways, proposed projects, or projects requiring maintenance in the suitable portion of the WSA. Therefore there would be no increased expense or labor time for livestock management.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Three respondents recommended the Seven Blackfoot WSA be designated wilderness, but gave no rationale. Thirty-four respondents favored the "conservationist alternative" supporting All Wilderness for Seven Blackfoot, but gave no specific rationale.

Three specific comments recommended All Wilderness. All three noted the value of Seven Blackfoot as a tack-on to wilderness proposals in the contiguous CMR. Two stated that the WSA was extremely rugged, scenic and well screened from sights of human endeavors. One person felt that the 11,450-acre southern segment should stand on its own as wilderness, as it is a unique area with limited impacts on livestock grazing and oil and gas development. The same person recommended exchange of the state inholding. The respondent stated that both segments are contiguous to CMR wilderness study areas and would enhance the wilderness characteristics of the CMR.

Five WSA-specific comments opposed any wilderness in Seven Blackfoot. One individual was opposed to the purchase of inholdings. One respondent stated that high potential for oil and gas was underestimated by the study. The respondent felt that lack of consideration of potential led to an erroneous evaluation for those parts of the WSA recommended for wilderness.

Two persons stated that the WSA does not provide opportunities for solitude, because of offsite activities such as farming. Both felt wilderness would cut off access for the elderly and handicapped. They also felt that grazing operations would be disrupted and that grazing rights would ultimately be eliminated. Both stated that Seven Blackfoot is already an undeclared wilderness and that its management should not be changed.

Four federal agencies commented on the Draft EIS but there were no comments from state and local governments.

The Army Corps of Engineers stated that BLM's alternatives were reasonable and well justified. The only concern was that designation of any areas adjacent to Fort Peck Project lands should not restrict recreational access to FWS-CMR lands not proposed for wilderness.

The U.S. Fish and Wildlife Service recommended that all of the area contiguous to the CMR in the WSA should be designated wilderness, including 2,790 acres the BLM had recommended nonsuitable in the Draft EIS. The FWS stated that the lands are ecological extensions of the CMR and that nondesignation would allow vehicle traffic along a ridge just south of the CMR study area, which would be visible to wilderness users. This would detract from both the CMR and BLM proposals. The National Park Service and the Environmental Protection Agency commented on the DEIS, but made no Seven Blackfoot WSA-specific comments.

BRIDGE COULEE WILDERNESS STUDY AREA

THE STUDY AREA - 5,900 ACRES

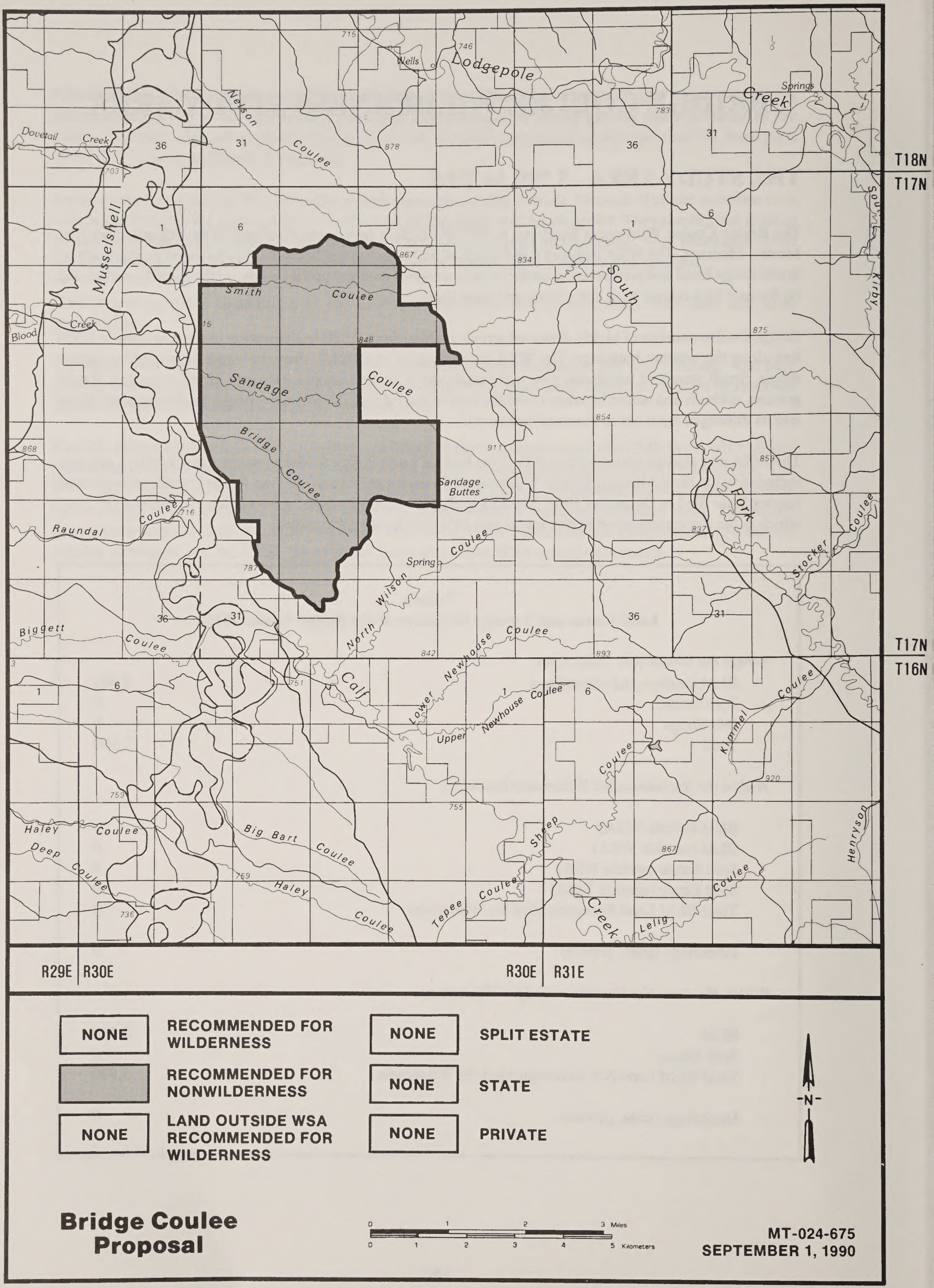
The Bridge Coulee Wilderness Study Area (MT-024-675) is in western Garfield County 15 miles north of Mosby, Montana. The WSA includes 5,900 acres of BLM lands. (See Table 1). It is bounded on the north by Smith Ridge Road and private lands, on the west by a county road and private lands, on the south by a road, and on the east by a county road and private and state lands.

Bridge Coulee consists of highly dissected terrain ranging from 2,920 feet elevation in the northeast to 2,350 feet along the western boundary. The WSA contains three moderately deep drainages separated by narrow ridges. Small stands of ponderosa pine and juniper grow in the bottoms and sides of the drainages. Range grasses, saltbush and native legumes cover the tops of the ridges. The WSA overlooks the Musselshell River and its drainages open out to the river (see map).

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Final Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact State filed in December 1987. The EIS analyzed two alternatives: a no-wilderness alternative which is the recommendation in this report and an all-wilderness alternative.

Table 1
Land Status and Acreage Summary of the Bridge Coulee WSA

Within the Wilderness Study Area	
BLM (surface and subsurface)	5,900
Split Estate	0
Inholdings	0
Total	5,900
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	5,900
Split Estate	0
Total BLM Land Not Recommended for Wilderness	5,900
Inholdings (state, private)	0


Lodgepole
Creek
Wells
Springs
Nelson
Coulee
Dovetail
Creek
Musselshell
Smith
Coulee
Blood
Creek
Sandage
Coulee
Bridge
Coulee
South
Fork
Kirby
Sandage
Buttes
Raundal
Coulee
Spring
Coulee
North
Wilson
Stocker
Coulee
Biggett
Coulee
Lower
Newhouse
Coulee
Upper
Newhouse
Coulee
Calf
Kimmel
Coulee
Haley
Coulee
Deep
Coulee
Big Bart
Coulee
Haley
Coulee
Tepee
Coulee
Sheep
Creek
Lelig
Henryson
T18N
T17N
T17N
T16N
R29E
R30E
R30E
R31E
36
31
36
31
1
6
1
6
36
31
36
31
1
6
1
6
715
746
783
878
703
867
834
15
848
875
854
911
868
859
716
837
787
842
893
751
920
759
755
867
759
736
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Bridge Coulee Proposal

MT-024-675
SEPTEMBER 1, 1990

RECOMMENDATION AND RATIONALE - 0 acres recommended for wilderness 5,900 acres recommended for nonwilderness

The recommendation for this area is not to designate it as wilderness and to release the area for other uses. The all-wilderness alternative was the environmentally preferred alternative. The proposed action would be implemented in a manner that will use all practical means to avoid or minimize environmental impacts.

The major reason for the recommendation is that overall wilderness quality of the WSA was judged not to be of quality necessary to merit inclusion in the National Wilderness Preservation System. There are four reservoirs, 3 miles of vehicle ways, and 4.75 miles of fence within the WSA. Because of the small size, these are site specific impacts on naturalness. The WSA's minimal size, drainage patterns that open to farming activities, several nearby homesites, and traffic on surrounding roads that form the boundaries detract from wilderness values, particularly opportunities for solitude. The area was determined through inventory not to contain outstanding opportunities for primitive and unconfined recreation.

Special features identified for the area include attractive river breaks scenery and paleontological values, but neither is of the quality of other areas presently designated or recommended for designation. Ecosystems in this WSA are already represented in the NWPS. This WSA would not add quality or diversity to the National Wilderness Preservation System (NWPS).

Good public access is available on the county roads that skirt the WSA on the east, north and west. While providing access, the locations of these roads (in conjunction with the small size of the area) reduce the effective area available for outstanding solitude and would affect BLM's ability to control vehicle use in the WSA.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The majority of the Bridge Coulee WSA appears natural. A reservoir, a fence, and 1.75 miles of vehicle way in the south half of this WSA have little effect on naturalness as these features are well screened by topography and vegetation. The cluster of reservoirs and 1.25 miles of vehicle ways in the northeast quarter are somewhat more noticeable since a fire in 1973 burned much of the vegetation. Human imprints on the WSA, as perceived by the average visitor, are negligible.

Solitude: This WSA contains some outstanding opportunities for solitude. Bridge Coulee is rectangular in shape, measuring two miles by four. The distance from the center of the WSA to the perimeter is one to two miles. Outstanding solitude opportunities exist mainly in isolated pockets in the south-central portion of the WSA, at the bottoms of the deepest drainages. These drainages run east to west, opening directly into a concentration of developments outside the WSA in the Musselshell River bottoms. Vehicle sounds on the county road to the west and the sounds of machinery funnel directly up these drainages, affecting the visitor's ability to find solitude. A ranch just outside the WSA (T. 17 N., R. 29 E., Section 12) and regularly used roads on the north and east sides of the WSA are additional sources of offsite activities. About 2,000 acres are adversely affected by these activities.

Primitive and Unconfined Recreation: The WSA does not contain outstanding opportunities for primitive and unconfined recreation. The main primitive recreation possibilities include hiking, rock collecting, nature photography, hunting and horseback riding. Present uses are limited to hunting (restricted by the difficulty of retrieving game and by fluctuating game populations) and occasional sightseeing by vehicle.

The WSA has attractive scenery but is less spectacular than the WSAs immediately adjacent to the Missouri River. Access into the WSA is good on graded, county roads, but is limited to dry weather (typically from July through October). The rough terrain limits horseback riding opportunities to the southeast and tends to channel hikers to the ridgetops and drainage bottoms. Campsites can be found in the scattered clumps of ponderosa pine, but potable water is not available. Rattlesnakes might present a hazard to visitors and wet weather and snow limit travel. The possible recreational activities, individually or collectively, do not provide outstanding recreational opportunities.

Special Features: No special features were found in this WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Shortgrass Prairie Province/Grama-Wheatgrass-Needlegrass 3110/57. There is currently one representative in the National Wilderness Preservation System (NWPS) and thirteen other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	222,977

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas have been designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U. S. Fish and Wildlife Service which have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

The WSA can reasonably be managed as wilderness to preserve values now present in the area. Management conflicts are not a major consideration resulting in a no-wilderness recommendation. No specific resource conflicts were identified that would reduce the long-term ability to manage this WSA as wilderness.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of oil is rated low by BLM geologists, while there is a moderate probability of finding natural gas in this WSA. A total of 85 percent of the acreage in this WSA is under post-FLPMA oil and gas leases (8/86).

Except for bentonite, the potential for finding commercially significant quantities of locatable minerals is negligible. The potential for bentonite is low. Bentonite may be found in the lower portion of the Bearpaw Shale, which is buried in this WSA.

No production of any mineral or geothermal resources is occurring in the WSA and none is projected.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered in the FEIS.

Table 4
Comparative Summary of Impacts - Bridge Coulee

Issues	Proposed Action-No Wilderness	All Wilderness Alternative
Impacts on Wilderness Values	The naturalness and outstanding opportunities of the WSA would be retained.	The naturalness, outstanding opportunities for solitude, and opportunities for primitive recreation in the WSA would be enhanced.
Impacts on Big Game Population Levels - Mule Deer	Mule deer population levels will not be impacted.	The mule deer population level would increase from a range of 40 to 50 to a level of 44 to 55.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock management or on the maintenance of existing range projects.	Two permittees would incur additional costs of $145 and 40 hours of labor annually.
Impacts on Recreation ORV Use Levels	There would be no impact on recreational ORV use levels.	Recreational ORV use would decline from 100 RVDs to zero.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes - such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance - will be forthcoming under wilderness designation, though this is not the case under BLM policy. Ranchers are also concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If wilderness designation occurs, many ranchers feel their operation will be less viable than it was before designation.

If the WSA were designated wilderness, out-of-pocket costs for ranchers have been estimated to be low. The substitution of horses for casual vehicle use would increase annual expenses by approximately 40 hours of labor and $145. Two operators have permits in this area, but one of them has about 90 percent of the AUMs.

Revenues to the county from any oil or gas production forgone because of wilderness designation would not be significant, based on present revenue generated in the surrounding breaks area and the projection that there would be no oil or gas development in the WSA.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Three respondents recommended that Bridge Coulee be designated wilderness, but gave no rationale. Another thirty-four respondents favored the "conservationist alternative" supporting wilderness designation for Bridge Coulee, but gave no specific rationale.

Two specific comments favored all wilderness. One stated that the area has attractive scenery, good access and significant fossils, and is relatively well screened. Wilderness designation would have only low to moderate impact on grazing and mineral activities. The other respondent stated that range conflicts, such as buried pipelines, should not create a major impact on naturalness. The area would provide important security areas for wildlife. Oil and gas activity create no great conflict in this area.

Two respondents specifically recommended no wilderness for Bridge Coulee, but provided no rationale.

Four federal agencies commented on the DEIS, but there were no comments from state or local governments. None of the comments was specific to this WSA.

MUSSELSHELL BREAKS WILDERNESS STUDY AREA

THE STUDY AREA - 8,650 acres

The Musselshell Breaks Wilderness Study Area (MT-024-677) is in Montana's western Garfield County approximately 5 miles north of Mosby. The WSA includes 8,650 acres of public land. (See Table 1). It is bounded on the north by Haley Ridge Road, a county road, and private and state land; on the west by private lands; on the south by Williams Ridge Road and private lands; and on the east by a county road and private and state lands. Musselshell Breaks is rectangular in shape - 2 miles by 4.5 miles with a center-to-perimeter distance of 1 to 2.5 miles.

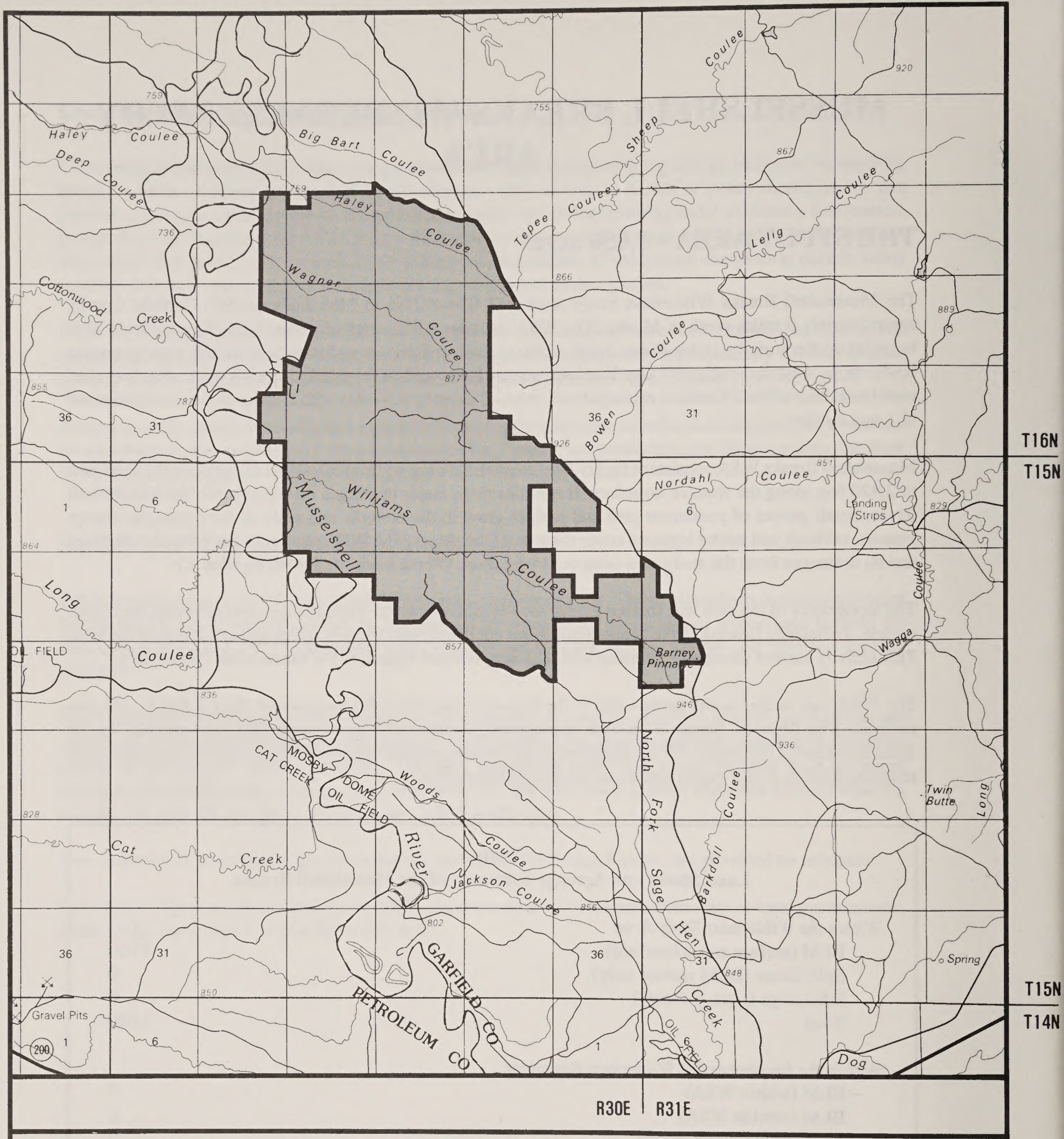
Musselshell Breaks WSA consists of highly dissected terrain ranging from 3,160 feet elevation in the southeast to 2,420 feet along the western boundary. It contains three major drainages that empty into the Musselshell River. Small groves of ponderosa pine and juniper grow in the bottoms and sides of the drainages. Range grasses, saltbush and native legumes cover the tops of the ridges. The WSA overlooks the Musselshell River and its drainages from the study area open out to the river. (These lands are shown on Map 1.)

The topography of the area was formed during the Pleistocene period when the ice sheet covering the region melted. Tributaries flowing to the Musselshell River cut deeply into the soft shales and sandstone of the area. This activity formed the numerous steep hills and deep coulees typical of the Musselshell Breaks area.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact Statement filed in December 1987. The EIS analyzed two alternatives: a no-wilderness alternative which is the recommendation in this report and an all-wilderness alternative.

Table 1
Land Status and Acreage Summary of the Musselshell Breaks

Within the Wilderness Study Area	
BLM (surface and subsurface)	8,650
Split Estate (BLM surface only)	0
Inholdings (state, private*)	0
Total	8,650
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM (within WSA)	8,650
BLM (outside WSA)*	40
Split Estate	0
Total BLM Land not Recommended for Wilderness	8,690
Inholdings (state, private)	0


Haley
Coulee
Deep
Coulee
Big Bart
Coulee
Haley
Coulee
Wagner
Coulee
Tepee
Coulee
Sheep
Coulee
Coulee
Lelig
Cottonwood
Creek
Coulee
Bowen
Nordahl
Coulee
Landing Strips
Williams
Musselshell
Coulee
Coulee
Long
Coulee
OIL FIELD
Wagga
Barney Pinnacle
MOSBY
CAT CREEK
DOME
OIL FIELD
Woods
Coulee
River
Jackson Coulee
North Fork
Sage Hen
Creek
Coulee
Barkdoll
Twin Butte
Long
Cat
Creek
GARFIELD CO
PETROLEUM CO
Spring
Gravel Pits
OIL FIELD
Dog
200
759
755
920
867
759
736
866
889
877
855
782
926
851
829
864
857
835
946
936
828
802
856
850
848
36
31
36
31
1
6
6
36
31
36
31
1
6
1
6
T16N
T15N
T15N
T14N
R30E
R31E

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

-N-

Musselshell Breaks Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-024-677
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

8,650 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area as wilderness. The environmentally preferred alterative is the all wilderness alternative. The recommendation, however, will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts. The primary reason for the recommendation is that overall wilderness quality of the WSA was judged to be of a quality that did not merit inclusion of the WSA in the National Wilderness Preservation System. There is potential for resource conflicts, particularly motorized vehicle intrusions into the area from adjacent roads.

An upgraded vehicle way, which divides this small WSA, detracts from the naturalness of the area. Drainage patterns that open to offsite influences - including farming activities on the west side and vehicle traffic on county roads on both the east and west sides - limit areas where outstanding solitude is available. Primitive recreation values and special features were determined to be less than outstanding.

Good public access is available on the county roads that skirt the WSA on the north and east. While providing access, the location of these roads also reduces the effective area available for solitude and complicates BLM's ability to control vehicle use in the WSA.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The majority of the area appears natural. A road running east-west divides the unit into two parts of 3,900 and 4,750 acres and adversely affects the natural appearance of 10 percent of the unit. The road presently is eroding in steep areas and revegetating in the flat portions due to a lack of maintenance or use.

The WSA contains two reservoirs, 6.9 miles of fence, and 7.5 miles of vehicular ways mostly associated with livestock grazing. Because of adequate forest screening, these developments do not adversely affect the natural appearance of the unit. This condition is especially true in the central and southern portions. As perceived by the average visitor, the imprints of humans within the WSA are considered negligible. Because the few constructed features are scattered, boundary modifications would not significantly increase this WSA's apparent naturalness.

Solitude: This WSA contains some outstanding opportunities for solitude. However, nearly 40 percent of the WSA is adversely affected by offsite activities. The WSA consists of three major drainages that run north by northwest and open directly into offsite developments consisting of irrigated fields, farm buildings, and a county road. Reflections, dust and noise penetrate at least one-half mile into the WSA from the west, being most noticeable from the ridge lines. The drainage bottoms and forest vegetation screen most of the road activities on the east side.

The WSA is under a military low-altitude training route, so periodic disruptions of solitude should be expected.

Primitive and Unconfined Recreation: The WSA does not contain outstanding opportunities for primitive and unconfined recreation. Primitive recreational possibilities include horseback riding, hiking, nature photography, hunting, and rock collecting.

Present uses are hunting and some sightseeing from vehicles. Access is good, with graded roads to the east and west. Rain or snowy weather makes the roads impassable, limiting the effective use of the area. Campsites may be found along the ridge lines but potable water is unavailable. This WSA is interesting to visit, but does not provide outstanding recreational opportunities.

Special Features: A special feature of this WSA is the scenery. Haley Coulee, Wagner Coulee, and Williams Coulee run north by northwest, emptying into the Musselshell River. These drainages have deeply etched the open grassy benches, creating attractive river breaks scenery. Moderately dense stands of juniper and ponderosa pine grow on the steep hillsides, especially on north slopes, and in sandstone soils.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Great Plains Shortgrass Prairie Province/Grama-Wheatgrass-Needlegrass 3110/57. There is currently one representative in the National Wilderness Preservation System (NWPS) and thirteen other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
	MONTANA			
	1	20,892	13	220,277

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings, Montana	13	4,819,000	76	755,000
Billings	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas are designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U. S. Fish and Wildlife Service which have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

The Musselshell Breaks is not recommended for wilderness designation because the WSA was judged not to be manageable as wilderness. Several factors contributed to the nonsuitable recommendation. Seasonal hunting along the recognized public roads is projected to add to the sights and sounds of human activities inside the WSA. Several miles of vehicular ways, used for range management, present potential ORV management problems and tend to detract from the naturalness and solitude of the WSA.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of both oil and gas is rated moderate by BLM geologists. All of this WSA is leased for oil and gas. Approximately 5.8 percent of the acreage in this unit is under pre-FLPMA oil and gas leases and 92.8 percent is under post-FLPMA leases. The WSA is also considered to have a low potential for coal and bentonite.

No other commercial quantities of recoverable minerals have been identified in this WSA. No production of any mineral or geothermal resources is occurring and none is projected.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered in the FEIS.

Table 4
Comparative Summary of Impacts - Musselshell Breaks

Issues	Proposed Action- No Wilderness	All Wilderness
Impacts on Wilderness Values	The naturalness of the northern third of the WSA would be insignificantly reduced by new project construction. Other wilderness values would remain unchanged.	The naturalness of the WSA would be insignificantly reduced in the northern third by new project construction and enhanced throughout by the elimination of vehicle ways. Opportunities for solitude and primitive recreation would be enhanced.
Impacts on Big Game Population Levels - Mule Deer	There would be no impact on mule deer population levels.	Mule deer population levels would increase from a range of 35 to 65 to a range of 40 to 70.

Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock management or the maintenance of existing range projects.	The checking of livestock and range development maintenance could continue, but the five permittees would incur additional costs of $360 and 95 hours of labor annually.
Impacts on Construction of New Range Improvements	There would be no impact on the construction of two miles of pipeline and two water catchments.	There would be no impact on the construction of two miles of pipeline and two water catchments.
Impacts on Recreational ORV Use Levels	There would be no impacts on ORV use levels.	Recreational ORV use would decline from 150 RVDs to zero.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes - such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance - will be forthcoming under wilderness designation. Ranchers also are concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If wilderness designation occurs, many ranchers feel their operation will be less viable than it was before designation.

Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low. The substitution of horses for casual vehicle use could result in increased expenses of approximately $360 and about 95 additional hours of labor annually. Potential loss to ranch loan values for long-term loans could be as much as $130,936, depending on the lender. Five operators have permits in this area. One operator has the majority of the AUMs but vehicle ways are distributed among all the allotments, therefore spreading the potential additional cost.

Revenues to the county from any oil or gas production forgone because of wilderness designation would not be a significant loss based on present revenue generated in the surrounding breaks areas and the small size of this WSA.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Three respondents recommended that the Musselshell Breaks be designated wilderness but gave no rationale. Thirty-four "conservationist alternative" comments supporting wilderness designation for Musselshell Breaks were submitted, but gave no specific rationale.

There were two specific responses favoring all wilderness. Both stated that mineral potential was low to moderate and not a significant conflict. Both noted that the area offers seclusion to wildlife. Both stated that range projects are not a significant conflict with wilderness designation.

Two responses specifically advocated no wilderness for Musselshell Breaks but provided no rationale.

Four federal agencies commented on the DEIS, but none of the comments was specific to this WSA. There were no comments from state or local governments.

TERRY BADLANDS WILDERNESS STUDY AREA

THE STUDY AREA - 42,950 ACRES

The Terry Badlands Wilderness Study Area (MT-024-684) is located 3 miles northwest of Terry, Montana, in Prairie County. The WSA consists of 42,950 acres of public land, 215 acres of split-estate lands, and 4,640 acres of inholdings. (See Table 1.) Though identified by a single name, this WSA actually consists of two roadless areas separated by a road, the Calypso Trail.

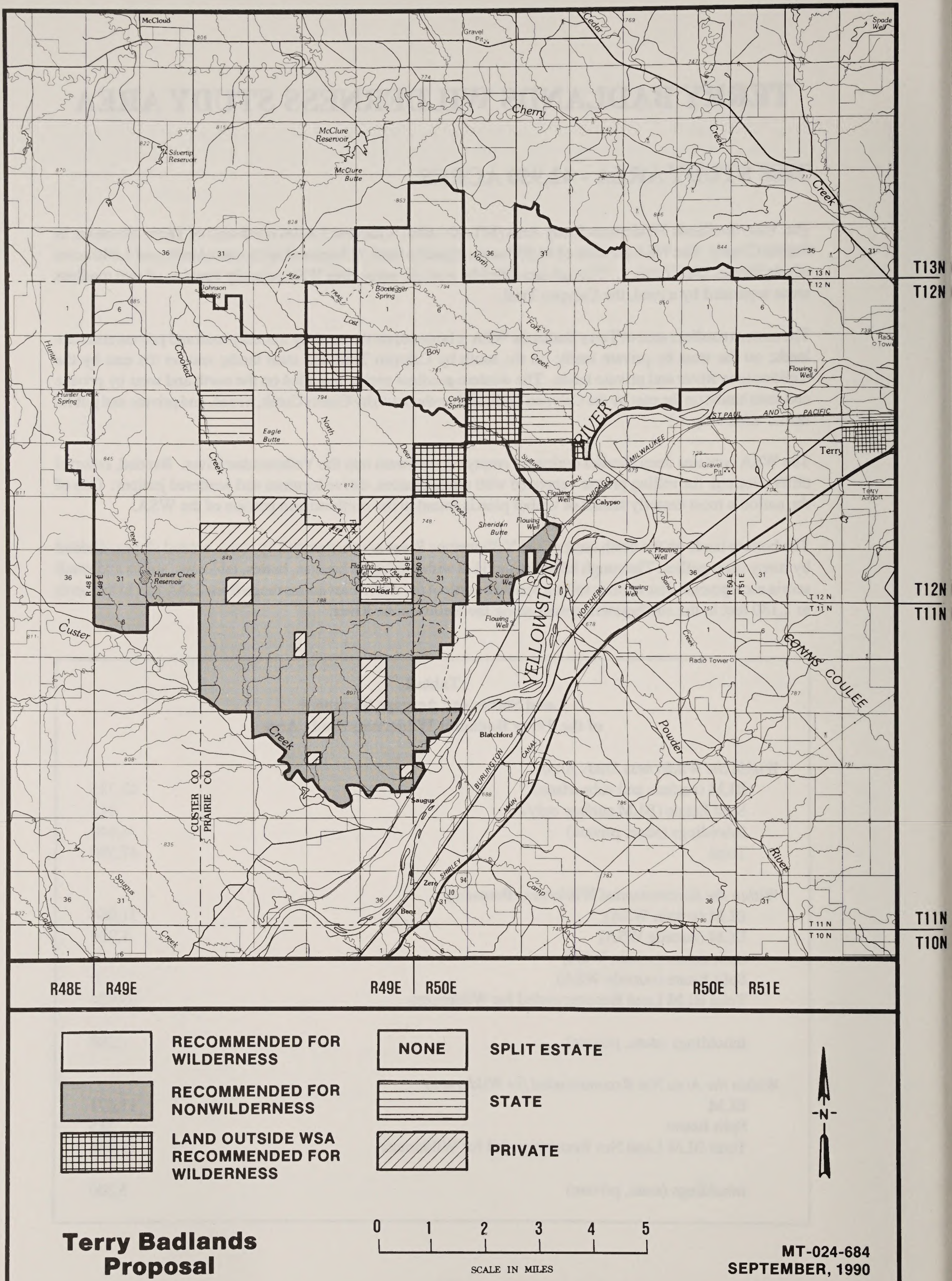
The eastern roadless area of Terry Badlands WSA is bounded on the north by a county road and private and state lands; on the west by private lands; on the south by Calypso Trail and state lands; and on the east by the Yellowstone River and private lands. The western roadless area is bounded on the north and west by private and state lands; on the east by the Calypso Trail; and on the south by Custer Creek, a road, and private and public lands. (See Map 1.)

The WSA contains deep parallel drainages emptying southeast into the Yellowstone River. Banded, colorful cliffs overlook the rolling prairie vegetated with range grasses, native legumes and scattered juniper. One of the nation's most easterly stands of limber pine is found in the northwestern portion of the WSA.

The bottom lands on the north bank of the Yellowstone River are surrounded by steep, eroded slopes, divided by many deep gullies. The rough hillsides, studded with sandstone bridges, buttes, tabletops, spires and small scoria escarpments, rise to meet rolling benches north of the river. Elevations range from 2,900 feet in the north to 2,180 feet in the southeastern corner along the Yellowstone River.

Table 1
Land Status and Acreage Summary
of the Terry Badlands Wilderness Study Area

Within the Wilderness Study Area	
BLM (surface and subsurface)	42,735
Split Estate (BLM surface only)	215
Inholdings (state, private)	4,640
Total	47,590
Within the Recommended Wilderness Boundary	
BLM (within WSA)	31,064
BLM (outside WSA)	1,960
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	33,024
Inholdings (state, private)	1,280
Within the Area Not Recommended for Wilderness	
BLM	11,671
Split Estate	215
Total BLM Land Not Recommended for Wilderness	11,886
Inholdings (state, private)	3,360


McCloud
Gravel Pit
Cedar
Spade Well
Cherry
Creek
McClure Reservoir
McClure Butte
Silvertip Reservoir
Creek
T13N
T12N
Johnson Spring
Bootlegger Spring
JEEP TRAIL
North
Fork
Lost
Boy
Creek
Hunter
Crooked
Hunter Creek Spring
Calypso Spring
Eagle Butte
North
Deer
Creek
Flowing Well
RIVER
ST PAUL AND PACIFIC
MILWAUKEE
CHICAGO
Terry
Gravel Pit
Calypso
Terry Airport
Radio Tower
Sulfur
Sheridan Butte
Hunter Creek Reservoir
Crooked
Swank Well
R 48 E
R 49 E
R 50 E
R 51 E
T 12 N
T 11 N
T 13 N
T12N
T11N
Custer
YELLOWSTONE
NORTHERN
Sand
CONNS COULEE
Powder
River
Blatchford
BURLINGTON
CANAL
MAIN
Saugus
CUSTER CO
PRAIRIE CO
Saugus
Creek
Cabin
Zero
SHIRLEY
Bonz
Camp
T 10 N
T11N
T10N
R48E
R49E
R49E
R50E
R50E
R51E
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
PRIVATE
N
0
1
2
3
4
5
SCALE IN MILES

Terry Badlands Proposal

MT-024-684
SEPTEMBER, 1990

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact Statement filed in December 1987. The EIS analyzed four alternatives: An all-wilderness alternative, a no-wilderness alternative, and two partial wilderness alternatives. One partial alternative recommends 14,670 acres for wilderness designation and 28,280 acres for other uses. The second partial alternative which is the recommendation in this report, would designate 28,520 acres as wilderness and release 14,430 acres for other uses.

Recent acquisition of three privately-owned sections of land which were inholdings at the time the WSA was studied for wilderness potential has changed the total acreage recommendations.

The acquisition of private land eliminates three inholdings totalling 1,960 acres which contain outstanding wilderness characteristics. The addition of these tracts to the area recommended for designation also made it feasible to include another 2,544 acres of previously studied lands which were previously separated from the recommended suitable area by the inholdings.

All of this acreage contains outstanding wilderness characteristics identical to the portions of the WSA recommended suitable in the Missouri Breaks Wilderness EIS.

RECOMMENDATION AND RATIONALE -

31,064 acres recommended for wilderness

11,886 acres recommended for nonwilderness

The northern portion of the study area comprising 31,064 acres is recommended for wilderness designation. This recommendation includes 1,960 acres of recently acquired lands. The remaining 11,886 acres are not recommended for wilderness and would be released for uses other than wilderness. (See Table 1.)

The area recommended for wilderness contains nearly all the WSA's spectacular badlands, rare limber pine stands, outstanding solitude, and the best opportunities for primitive and unconfined types of recreation. Approximately 4,000 acres in the area recommended for wilderness are not leased for grazing, thus reducing the potential for conflicts with that resource use. The road to the Terry scenic overlook is cherry-stemmed so that access exists. Designation of this WSA would supplement the diversity of the National Wilderness Preservation System (NWPS), as this area has excellent wilderness quality.

The decision not to recommend the southern portion of the western roadless area for wilderness is based on substantially lower quality wilderness values in that parcel and a variety of resource conflicts. These include five scattered tracts of private inholdings, a network of vehicle ways, and a number of range developments. There is some potential for loss of wilderness value through future development. Overall, this area does not contain wilderness values of high enough quality felt necessary to include in the National Wilderness Preservation System.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The entire WSA appears essentially natural. Most of the study area has very rugged terrain, which hides most human-caused features. The area near the southeastern border near Crooked Creek contains most of the vehicle ways, many originating in the flat floodplains beside the Yellowstone River. These vehicle trails and several reservoirs are evident signs of humans in the southeast portion of the area. Elsewhere, vehicle ways, springs, reservoirs and fences do not adversely affect the apparent naturalness of the area.

The Terry scenic overlook along the northeast boundary is served by a well-used road. The overlook is marked by a sign and serviced by a cherry-stemmed road. Because the features are well screened by the topography and the cherry-stemmed route is short, impacts are slight.

The Calypso Trail, dividing the two roadless areas, is well screened and so little used that it is not a significant infringement on the naturalness of the northern portion of the WSA.

Developments in the northern portion of Terry Badlands recommended for wilderness are mostly associated with livestock grazing.

Solitude: Overall, opportunities for solitude are outstanding in the portion of the area recommended suitable due to the topographic screening and the large acreage. The southern portion of the WSA (which is recommended nonsuitable), while containing pockets of outstanding solitude, is affected by the sights and sounds of people from just outside the WSA's boundaries to a greater degree than the northern portion.

The Terry Badlands are roughly triangular in shape, measuring approximately 10 miles across the base (along the Yellowstone River) and 8 miles from the base to the tip in the northwest corner. The distance from the center of the WSA to the perimeter is 4 to 5 miles.

Topographic screening is excellent except in the more open southwestern portion, which is not recommended for wilderness. In that area sights and sounds from the highways and railway across the Yellowstone River just south of the WSA boundary extend at least 2 miles into the WSA's southern part. With the human activities in view from the ridgetops and mechanical sounds channelled up the drainages, the portions recommended nonsuitable do not contain outstanding opportunities for solitude.

There is a potential for periodic adverse effects on solitude from traffic along the Calypso Trail, which bisects the recommended portions of the unit. The noise, dust and reflections from occasional vehicles have only local impact, due to the excellent topographic screening in those parts of the WSA.

Vegetative screening is limited in this WSA. Some screening is provided in the northwest by patches of limber pine which cover some 800 acres in the area recommended suitable. Outstanding opportunities are readily available in this area. The scenic overlook of the extreme northeast corner in an area recommended suitable is accessed by a cherry-stemmed road, but is well screened by scattered junipers and ponderosa pines. Sights and sounds of humans are evident from the overlook but quickly disappear in the rough country below that point.

The Terry Badlands are in the path of daily low-level B-52 training flights which would periodically affect solitude throughout the WSA.

Primitive and Unconfined Recreation: While no singular recreational opportunity was identified as outstanding, the area provides a diversity of primitive recreation opportunities.

The Terry Badlands are accessible on the north by county roads, on the east by the Yellowstone River, and in the center by the Calypso Trail. Recreational opportunities in the entire area are mainly hunting or sightseeing from vehicles. The established overlook (T. 12 N., R. 50 E., Section 2) provides scenic views of the northern half of the area. There are several places for enjoyable overnight camping. Drinking water is unavailable, limiting the length of stay and the hiking range of backpackers. The soils are clay-like in texture and are not passable in wet weather. Winters are harsh and the terrain limits winter sports.

Hazards such as occasional rattlesnakes, steep unstable terrain, extreme weather conditions and the lack of drinking water characterize the WSA. It is, however, an excellent area for wilderness users who enjoy hiking, back country hunting, rock and fossil collecting and the spectacular badlands scenery.

Special Features: The Terry Badlands contain stands of limber pine, unusual this far east. The WSA also contains petrified logs, the preserved remnants of past vegetation in the area.

The scenery is outstanding. Geologic features include sandstone bridges, table tops, springs and buttes formed by thousands of years of wind and water erosion.

The Terry Badlands are rated high in potential archaeological resources with an estimated three to five sites per square mile. Historically, U.S. Army troops carved graffiti on Sheridan Butte in the Badlands in the 1870s and dug rifle pits on a butte to the north of the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Great Plains Shortgrass Prairie Province/Grama-Wheatgrass-Needlegrass 3110/57. There is currently one representative in the National Wilderness Preservation System (NWPS) and thirteen other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation
(July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	185,712

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000
Rapid City, South Dakota	—		—	

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas are designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U.S. Fish & Wildlife Service which have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

The portion of this WSA recommended suitable for wilderness could be effectively managed as wilderness. Several long-term manageability considerations contribute to the nonsuitable recommendation for the remainder of the WSA.

The portion of the area recommended suitable is presently served by a vehicle way and would not require the construction of a new access route. The area recommended nonsuitable contains a high percentage of private inholdings which are scattered widely and could require several different access routes. Current use of these inholdings is associated with grazing. No developments are projected for the inholdings.

Energy and Mineral Resource Values

Between 1984 and 1987, the Geological Survey and the U.S. Bureau of Mines prepared a mineral assessment for the portion of the Terry Badlands WSA recommended as suitable. Those agencies' investigations revealed 14.45 million short tons of demonstrated subeconomic and 34.65 million short tons of inferred subeconomic resources of coal. The study area has moderate resource potential for undiscovered oil and gas and low mineral resource potential for undiscovered metals, sand and gravel, geothermal energy, and bentonite.

The geologic environment, lack of geochemical anomalies, and lack of mines or prospects indicate that the mineral resource potential for all metals is low. Sand and gravel deposits are thin and discontinuous, and the mineral resource potential for these commodities is also low. Bentonitic shale beds in the Fort Union formation are less than 5 feet thick; mineral resource potential for bentonite is low. There are no known geothermal energy sources in or near the study area. The resource potential for geothermal energy is low.

Though the wilderness study area is on the edge of the oil-and gas-producing Williston Basin, five drill holes adjacent to the study area were dry. Geophysical data suggest that structural and stratigraphic traps might exist along the western edge of the study area, but none is presently known. The energy resource potential for oil and gas is therefore moderate.

There is no known mineral production from the wilderness study area.

In summary, demonstrated coal reserves are subeconomic, oil and gas potential is moderate, and the potential for undiscovered metals, sand and gravel, geothermal energy and bentonite is low.

Impacts on Resources

Table 4 summarizes the effects on pertinent resources for all the alternatives considered including designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Terry Badlands

Issues	Proposed - No Wilderness	Partial - Alternative 1	Partial - Alternative 2	All Wilderness
Impacts on Wilderness Values	The naturalness of the portion recommended as suitable would be enhanced due to the elimination of recreational ORV use and motorized vehicle use associated with livestock checking, dispute reductions, and offsite impacts from coal-mining activity. Coal mining would destroy wilderness values on 50% of the nonsuitable portion.	Naturalness would be retained on 85% and outstanding opportunities for solitude on approximately 75% of the WSA. Wilderness values on 15% of of the WSA would be destroyed by coal mining.	The wilderness values of 14,670 acres recommended as suitable would be slightly enhanced, as would naturalness and solitude due to reductions in motor vehicle use offsite impacts due to coal mining. The wilderness values on 25% of the nonsuitable portion would be destroyed by coal mining.	Naturalness and solitude and primitive recreation opportunities would be enhanced due to most forms of vehicle use.
Impacts on Big Game Population Levels - Mule Deer	The population of mule deer would increase to a range of 105 to 175.	The population of mule deer would remain at a range of 100 to 170.	The population of mule deer would remain at a range of 100 to 170.	The mule deer population level would increase from a range of 100 to 170 to a range of 110 to 180.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	The checking of livestock and range development maintenance could continue, but at the additional annual expenses of $576 and 155 hours labor.	There would be no impact on livestock or range improvement development levels.	For the portion of the WSA recommended as suitable, additional labor of 20 hours and expenses of $70 annually would be incurred.	Five permittees would together incur annual additional costs of $1,105 and additional labor of 295 hours.
Impacts on Recreational ORV Use Levels	Recreational ORV use would decline from 400 RVDs to 125 RVDs annually.	Recreational ORV use would decline from 400 RVDs to 325 RVDs annually.	Recreational ORV use would decline from 400 RVDs to 300 RVDs annually.	Recreational ORV use would decline from a level of 400 RVDs, including 15 vehicle-dependent RVDs, to 0.
Impacts on Coal Mining Levels	There would be no impacts associated with coal mining levels.	There would be no impacts associated with coal mining levels.	There would be no impacts associated with coal mining levels.	The opportunity to mine coal in the WSA would be forgone.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes — such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance — will occur under wilderness designation, though this is not the case. Ranchers also are concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If wilderness designation transpires, many ranchers feel their operation will be less viable than it was before designation.

Actual out-of-pocket costs if the area were designated have been estimated to be low. Under the proposed action, the following effects could occur:

The substitution of horses for casual vehicle use would increase ranchers' expenses by approximately $576.00 and about 155 additional hours of labor annually. Five operations have permits in this area; one permittee would incur most of the increase in expenses.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Eighty-four letters and forty-three oral comments were received during the formal comment period on the Missouri Breaks DEIS, which included the Terry Badlands WSA. A summary of comments specific to the Terry Badlands follows.

Six respondents recommended that Terry Badlands be designated wilderness, but provided no rationale. Thirty-four respondents favored the "conservationist alternative" supporting the BLM-preferred alternative for Terry Badlands. Five respondents recommended all or part of the WSA and provided specific rationale for their recommendations. Two of the five agreed with the recommendation. One suggested that only the easternmost portion be designated. Two of the five suggested that additional state and private lands be acquired and included. Areas mentioned were along the Calypso Trail, between the WSA and the Cherry Creek divide, and along Crooked Creek.

Respondents favoring wilderness commented on the high wilderness values, the spectacular scenery, the interesting geologic features of sandstone formations, and the limber pine. They also felt there was adequate access to the area.

One individual opposed designation, but gave no specific reason. Some respondents who supported a partial alternative felt that resource production could be maximized on the portion of the WSA not designated.

No state or local governments or other federal agencies submitted any WSA-specific comments.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)[2]	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition[3]	
			Surface	*Subsurface*			*Land Costs*	*Processing Costs*
Parcel No. 1 T. 12N., R. 50E., Sec. 16	640	one	State	State	No	Exchange	N/A	$5,000
Parcel No. 2 T. 12N., R. 49E., Sec. 36	640	one	State	State	No	Exchange	N/A	$5,000

(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

(2) If a parcel larger than that shown in the first column has been recently subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method only administrative costs of processing the exchange should be shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both the land costs and the processing costs should be provided.

ANTELOPE CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 12,350 acres

The Antelope Creek Wilderness Study Area (MT-065-266A and 266B) consists of about 12,350 acres of public lands on the north side of the Missouri River in Phillips County, Montana. The WSA's south side is contiguous with the Charles M. Russell National Wildlife Refuge (CMR). Although identified by a single name, the area contains two separate roadless blocks of land divided by a road that is not within the WSA boundaries. Segment A west of the road contains 9,600 acres of public lands; Segment B east of the road contains 2,750 acres. (See map.)

Boundaries: the western segment (A) is bounded on the north by the Fortress Butte, Hideaway Ridge and Power Plant Ferry Roads as well as by private, state and public lands. The Power Plant Ferry Road forms the west border; the CMR, private land, and the Missouri River form the south border; the Antelope Ridge Road delineates the east boundary. The eastern segment (B) is bounded on the north and east by a combination of public and private lands, on the south by the CMR, and on the west by the Antelope Ridge Road.

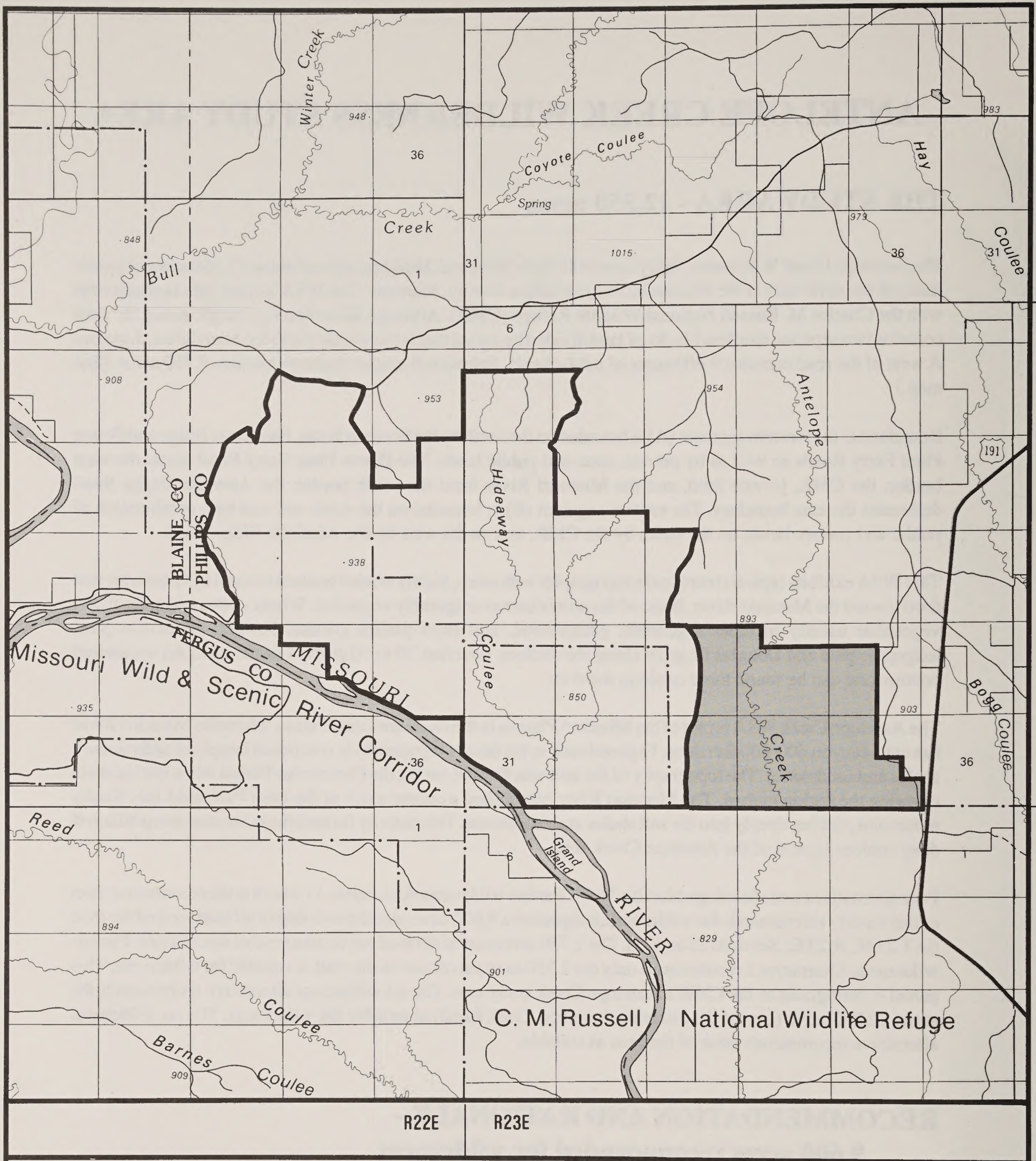
This WSA exhibits typical river breaks topography with steep, highly eroded coulees formed by tributaries that drop toward the Missouri River. Most of the unit is barren or sparsely vegetated. Where slopes and soils allow, vegetation usually includes sagebrush, greasewood, and short prairie grasses. Juniper, ponderosa pine, lodgepole pine and Douglas fir grow along the coulees, covering 20 to 30 percent of the area. An occasional cottonwood can be found there or along the river.

The Antelope Creek WSA is part of the Missouri Plateau in the Northern Great Plains, where the Missouri River has cut a canyon 600-800 feet deep. Exposed rock in the breaks topography is composed largely of sedimentary shales and sandstones. The topography of the unit was formed during the Pleistocene Period when the ice sheet covering the region melted. The Missouri River established a course south of the Bear Paw and Little Rocky mountains, cutting deeply into the soft shales and sandstones. This activity formed the numerous steep hills and deep coulees typical of the Antelope Creek area.

Four alternatives were developed for this WSA. Partial-wilderness Alternative 1 - which is the recommendation of this report - recommends for wilderness designation a 9,600-acre parcel consisting of all land west of the road (in T.23 N., R.23 E., Sections 28 and 33). The 2,750 acres east of the road are recommended nonsuitable. Partial-wilderness Alternative 2 recommends only the 2,750-acre parcel east of the road as suitable for wilderness. This parcel is contiguous to the CMR's Antelope Creek study unit. The all-wilderness alternative recommends the entire 12,350 acres (except the bisecting Antelope Creek Road) as suitable for wilderness. The no-wilderness alternative recommends none of the area as suitable.

RECOMMENDATION AND RATIONALE -
9,600 acres recommended for wilderness
2,750 acres recommended for nonwilderness

Segment A, containing 9,600 acres, is recommended for wilderness. Segment B, containing 2,750 acres, is not recommended for wilderness designation and would be released for uses other than wilderness (see Table 1). The all wilderness alternative is the environmentally preferred alternative. The recommendation however, will be implemented to use all practical means to avoid or minimize environmental impacts. In the area recommended nonsuitable, existing regulations and policy will guide the use of the land to ensure unnecessary environmental damage does not occur.


Winter Creek
948
36
Coyote Coulee
Spring
Creek
983
Hay
Coulee
973
36
31
848
Bull
1
31
1015
T24N
T23N
6
908
953
954
Antelope
191
BLAINE CO
PHILLIPS CO
Hideaway
938
Coulee
893
Missouri Wild & Scenic River Corridor
FERGUS CO
MISSOURI
850
Bogg Coulee
935
903
Creek
36
31
36
T23N
T22N
Reed
1
Grand Island
6
RIVER
894
829
901
Coulee
C. M. Russell National Wildlife Refuge
Barnes
909
Coulee
R22E
R23E

☐ RECOMMENDED FOR WILDERNESS

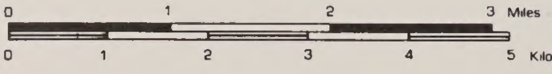
▨ RECOMMENDED FOR NONWILDERNESS

NONE LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS

NONE SPLIT ESTATE

NONE STATE

NONE PRIVATE


0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Antelope Creek Proposal

MT-065-266
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary of the Antelope Creek WSA

	Acres
Within the Wilderness Study Area	
BLM (surface and subsurface)	12,350
Split Estate	0
Inholdings	0
Total	12,350
Within the Recommended Wilderness Boundary	
BLM (within WSA)	9,600
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	9,600
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	2,750
Split Estate	0
Total BLM Land Not Recommended for Wilderness	2,750
Inholdings (state, private)	0

The steep, dissected terrain and scattered timber, especially near the Missouri River, support excellent opportunities for solitude in the 9,600-acre western segment (A). Conversely, solitude opportunities in the 2,750-acre eastern segment (B) are seriously limited: vehicles passing on adjacent U.S. Highway 191 cause periodic disruptions. The eastern parcel does not have the size or screening to withstand such impacts on its own, so it is not recommended for wilderness.

The segment recommended for wilderness has high wilderness values. It offers excellent scenic values, outstanding opportunities for solitude, and abundant nonmotorized recreation opportunities. Its designation would add to the diversity of the National Wilderness Preservation System. The WSA would benefit wilderness management and public use of the contiguous wilderness areas in the CMR Refuge by effectively expanding their size, as well as augmenting the opportunities for solitude and primitive nonmotorized recreation.

The eastern segment recommended nonsuitable for wilderness has fewer opportunities for solitude because of sights and sounds from U.S. Highway 191. That route runs along the southeastern tip of the WSA. The entire WSA has a high estimated structural potential for recoverable quantities of natural gas. The quality of wilderness values in the 2,750 acre area not recommended for wilderness are not high enough to balance this potential resource value.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: Both the western and eastern segments of the WSA are apparently natural. The rough terrain has restricted most human features to ridge tops where fourteen vehicle ways have provided vehicle access to the

WSA. These ways are dispersed throughout both segments and several radiate from the Antelope Creek Road (which separates the WSA's two parts). The eastern segment contains one water well and the western segment has one reservoir. Neither of these developments has a major impact on naturalness.

In the western segment recommended suitable for wilderness, the few developments are used to facilitate livestock grazing and to provide hunting access, and would not require any substantial rehabilitation if the area became wilderness. The vehicle ways on ridges, used mainly for seasonal hunting or sightseeing, would revegetate from lack of use. Because developments are scattered throughout the WSA, boundary modifications would not significantly increase the unit's apparent naturalness.

Solitude: The WSA's western portion (Segment A) contains outstanding opportunities for solitude. The rugged terrain, characterized by a number of parallel drainages opening to the Missouri River, screens any activities that might occur on nearby ridge tops.

Detractions to solitude primarily occur from offsite impacts and especially affect the small eastern segment which is recommended nonsuitable. These offsite impacts include traffic on the surrounding roads, particularly U.S. Highway 191 on the east and the Antelope Creek Road on the west of Segment B. The topography in this segment limits the impact to areas adjacent to the boundary. In the recommended-suitable area (Segment A), periodic traffic on the Power Plant Ferry Road is visible along the northern and western borders during the summer months.

U.S. 191 is an all-weather highway bordering Segment B. Highway traffic is visible and audible from nearly 25 percent of the 2,750-acre area, especially at night. Traffic volume on the Antelope Creek Road is low during the spring and early summer, but hunting use increases traffic substantially during late summer and fall.

Other minor offsite impacts on both segments include the Landusky Mine and the jet training zone. Lights from the mine, 15 miles away, can be seen from the ridges. Jet aircraft average eight flights at 4,000 feet daily over the WSA. These overflights periodically affect the quality of solitude in both segments.

Primitive and Unconfined Recreation: Although no single recreational opportunity was identified as outstanding, this WSA provides a diversity of primitive recreation possibilities. Opportunities in both segments include hunting, horseback riding, hiking, photography and rock climbing. Hunting currently is the most popular activity, typically occurring from vehicles along ridges. The Upper Missouri Wild & Scenic River is an important recreational attraction in Segment A: visitors floating the river can camp along the unit's shoreline, fish from the bank, hike the coulees, and enjoy the outstanding scenery.

Public access into Segment A is available along the Power Plant Ferry Road and the Antelope Creek Road, and from the Missouri River by boat. Segment B is accessible from the Antelope Creek Road or across 2 miles of public lands from the Missouri River. Private landowners control other access points. Rain or snow can make any of the dirt access roads impassable. Access usually is limited to dry weather, normally the July-October period.

Special Features: The Antelope Creek WSA has a very scenic and rugged appearance. The dry and heavily eroded terrain combines steep slopes of exposed shale with many narrow ridges. Trees are not plentiful and are concentrated near ridges.

The study area is rich in historical significance. Artifacts of both historic and prehistoric eras may be found in the WSA. Of particular historic note is Kid Curry's Outlaw Hideaway, north of Segment A on private land.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as grama-wheatgrass-needlegrass ecotype. Currently there is only one representative of this ecotype in the National Wilderness Preservation System (NWPS). There are thirteen other BLM WSAs being studied for potential Wilderness designation in this ecotype. The addition of the BLM study units to the NWPS would help balance the diversity and quality of the national system, but because of the number of other units pending designation, it was not a major consideration affecting the suitability of the WSA.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas** areas	acres	**Other BLM Studies** areas	acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	216,527

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		**Other BLM Studies**	
Population Centers	**areas**	**acres**	**areas**	**acres**
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas have been designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U.S. Fish & Wildlife Service which have been administratively endorsed for wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

The western area (Segment A), while having some potential management conflicts with oil and gas development, could be effectively managed as wilderness. There would be a potential long-term management conflict, however, if Segments A and B both were designated wilderness.

Approximately 27 percent of the acreage in Segment A contains pre-FLPMA oil and gas leases. Since these leases can be explored and developed even if doing so would degrade wilderness values, they create a short-term wilderness manageability problem. Most of these pre-FLPMA leases are situated in the center of the segment, where excellent topographic and vegetative screening would allow some exploration without major impairment of wilderness values.

The Antelope Ridge Road that divides the area into two separate roadless blocks of land would pose a significant management problem if both segments were designated wilderness. This road itself would remain outside WSA boundaries, but it would allow vehicle use into the center of the area. The major impacts of this situation would fall on the small eastern segment because a major highway already skirts its eastern side and it is too small to absorb extensive offsite impacts.

Energy and Mineral Resource Values

The U.S. Geologic Survey and the U.S. Bureau of Mines have completed a mineral assessment for the Antelope Creek Wilderness study area. Their report indicates that marginally economic coal resources are present in the northwest portion of the area. The entire area has a high potential for natural gas and a low potential for oil. Also, the entire area has a low potential for undiscovered coal, all metallic minerals, bentonite, zeolites and diamonds.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered.

Table 4
Comparative Summary of Impacts - Antelope Creek WSA

Issue	Partial Wilderness - 1 (Preferred Alternative)	Partial Wilderness Alternative 2	All-Wilderness Alternative	No-Wilderness Alternative
Impacts on Wilderness Values	Protection would be maintained for 9,600 acres.	Protection would be maintained for 2,750 acres.	Protection would be maintained for 12,350 acres.	Possible oil and gas development could reduce natural values. NW&SR status provides some protection of values on 35% of WSA.
Impacts on Big Game Population Levels	Potential for increase in mule deer populations if blocked with CMR.	No impact.	Similar to Alternative 1.	Present conditions would be maintained.
Impacts on Livestock Management	Similar to All Wilderness. Slightly less restriction.	No impact.	Low impact. Few proposed facilities. Vehicle-use restrictions could increase ranchers' costs.	Present conditions would be maintained.
Impacts on Recreational ORV Use Levels	Minor disadvantage: 9,600 acres and 9.75 miles of vehicle ways would be closed to motorized recreation.	Minor disadvantage: 2,750 acres and 1.25 miles of vehicle ways would be closed to motorized recreation.	Minor disadvantage: 12,350 acres and 11 miles of vehicle ways would be closed to motorized recreation uses.	Present conditions would be maintained.

Impacts on Minerals Development	Some high-potential natural gas might not be developed.	Low impact. Restrictions on gas development would be limited to a small area.	There would be a possibility that high-potential gas could not be developed.	Present conditions would be maintained.
Impacts on Ranch Economics	Ranchers would incur additional expenses of $490 and 130 hours of labor annually.	Ranchers would incur additional expenses of $35 and ten hours of labor annually.	Ranchers could incur additional expenses of $530. Ranch loan values could drop as much as $107,015.	Present conditions would be maintained.
Impacts on Vegetation	Same impact as All Wilderness, but on reduced acreage.	Same impact as All Wilderness, but on considerably reduced acreage.	Fire would be controlled only when it threatens property or life on adjacent lands. Periodic changes in types and density of natural vegetation are possible. Vegetation would be protected from surface disturbances.	Present conditions would be maintained.
Impacts on Cultural Resources	Cultural sites would be protected on 9,600 acres, though less than with All Wilderness.	Fewer potential sites would be protected than under Alternative 1.	Potential sites would be protected by limiting surface disturbances and restricting vehicle access.	Present conditions would be maintained.
Impacts on Soils and Watershed Resources	Minor protection would be afforded. Slightly more erosion from surface disturbances is possible than with All Wilderness.	Minor protection would be afforded. More soil erosion from surface disturbances is possible than under All Wilderness.	Minor protection would be afforded by restricting surface-disturbing activities.	Present conditions would be maintained.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance, will be forthcoming under wilderness designation, though this is not the case under BLM policy. Ranchers also are concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If designation occurs, many ranchers feel their operation will be less viable than it was before designation.

Actual out-of-pocket costs if the area were designated have been estimated to be low. If the entire WSA were designated wilderness, a number of impacts could occur. The substitution of horse use for casual vehicle use would result in increased expenses of approximately $530 and about 140 additional hours of labor annually. The potential loss in loan values for long-term ranch loans could be as much as $107,015, depending on the lender. Two operators and one grazing association have permits in this area. One operator has the majority of the AUMs but, since this is a common allotment, all operators might use the vehicle ways. Thus, expenses might be higher than estimated.

If only the western segment (A) is designated, the potential expense of substituting horses for casual vehicle use would drop to $490 and about 130 additional hours of labor annually. Potential loss in loan value for long-term ranch loans would be reduced but still could be as high as $83,094, depending on the lender. These potential impacts would be shared by the two operators and the grazing association.

Partial-wilderness Alternative 2 would restrict vehicle use on less than one mile of vehicle way. The expense of substituting horses for casual vehicle use is almost eliminated, reduced to $35 and ten additional hours of labor annually. Potential loss in ranch loan value for long-term loans could be as much much as $23,921, depending on the lender.

Revenues to the county from any oil or gas production forgone because of wilderness designation of all or part of the WSA would not pose a significant loss, based on present revenues generated in the surrounding breaks areas.

Summary of WSA-Specific Public Comments

A number of comments was received during the inventory phase of the wilderness review for Antelope Creek WSA. Some of these comments were deferred to the study phase and were not considered in the selection of the area as a WSA. Deferred to the study were the following comments:

The unit is impacted by outside sights and sounds. Ranches and farms can be seen. Vehicle sounds can be heard from a nearby highway, lights can be seen from nearby mines, and sounds of low-flying aircraft impact the area.

Three respondents recommended that Cow Creek be designated wilderness but provided no rationale. Thirty-four conservationist alternatives that supported wilderness designation for Cow Creek were submitted, but no rationale was provided.

Five respondents provided specific rationale for designating the Antelope Creek WSA. Four respondents stated that the eastern 2,700-acre segment should be recommended as a logical extension of the CMR study area. Two noted that Antelope Creek features spectacular sandstone cliffs and outstanding wilderness values.

One respondent stated that Cow Creek and Antelope Creek are primarily horseback use areas and that the wilderness proposals have eliminated most of the conflicts and economic impacts to the livestock industry. In addition, considerable gas exploration in the past has yielded no producing wells or known reserves in this unit.

Twenty-three respondents provided specific rationale for not recommending Antelope Creek for wilderness. The most common reason (16 responses) was that the unit did not appear natural due to human activities and developments. Ten individuals stated that wilderness status would interfere with the extraction of needed energy mineral resources. Eight respondents felt that designation would close the area to the old, the very young, and the handicapped.

Four persons cited the impact to wilderness values of energy development on pre-FLPMA leases. Six respondents mentioned a lack of opportunities for solitude in the unit and a probable decrease in grazing privileges because of designation.

Three individuals claimed that a lack of primitive recreation opportunities and unmanageable boundaries were sufficient reasons to drop the unit. Two responses offered the following reasons for nondesignation: the role of wilderness restrictions (especially limitations on water development) in decreasing game habitat in the area; a lack of primitive recreational opportu- nities; the IBLA decision forbidding wilderness study of areas (those smaller than 5,000 acres) adjacent to other agencies' WSAs solely as a function of their contiguity; the reduced borrowing power of adjacent ranchers, part of whose BLM grazing privileges are located inside the proposed boundaries; and wilderness restrictions on full economic productivity of the land.

The following reasons generated single responses: restriction of reservoir maintenance; lack of drinking water in the area; a greater chance of environmental degradation and littering given the increased visitation expected after designation; wilderness restrictions that interfere with the operations of adjacent landowners; and a loss of value for ranches whose BLM grazing leases are located partially inside the wilderness borders.

No state or local agencies submitted any WSA-specific comments. The U.S. Fish & Wildlife Service stated that it endorsed BLM's preferred alternative.

[illegible]

[illegible]

[illegible]

Summary of Site-Specific Public Comments

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

BURNT LODGE WILDERNESS STUDY AREA

THE STUDY AREA - 13,730 acres

The Burnt Lodge Wilderness Study Area (MT-065-078) is located on the north side of Montana's Fort Peck Reservoir in Phillips and Valley counties. This WSA includes 13,730 acres of BLM land. It is bounded on the north by Plum Creek Road and private and state lands; on the west by private lands; on the south by Ball Rock Road, the Charles M. Russell National Wildlife Refuge (CMR), and private and state lands; and on the east by private lands along Timber Creek. (See map.)

The Burnt Lodge WSA contains spectacular river breaks topography formed by a number of tributaries that flow to the Missouri River from the northwest. The steep south-facing slopes consist of eroded badlands with no significant vegetative cover. The ridge tops and north-facing slopes are vegetated by prairie grasses and forbs. Approximately 25 percent of the area supports scattered stands of ponderosa and lodgepole pine, juniper and Douglas fir. Elevations range from 3,100 feet in the northern portion to 2,400 feet along the CMR boundary and the adjoining Fort Peck Reservoir.

Burnt Lodge WSA is part of the Missouri Plateau in the Northern Great Plains, where the Missouri River has cut a canyon 600-800 feet deep. Exposed rock in the breaks topography is mostly shales and sandstones, lying over older sedimentary formations.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Missouri Breaks Wilderness Management Framework Plan Amendment/Environmental Impact Statement finalized in December 1987. The EIS analyzed two alternatives, all wilderness and no wilderness. The preferred alternative in the EIS and the recommendation of this report is the all-wilderness alternative.

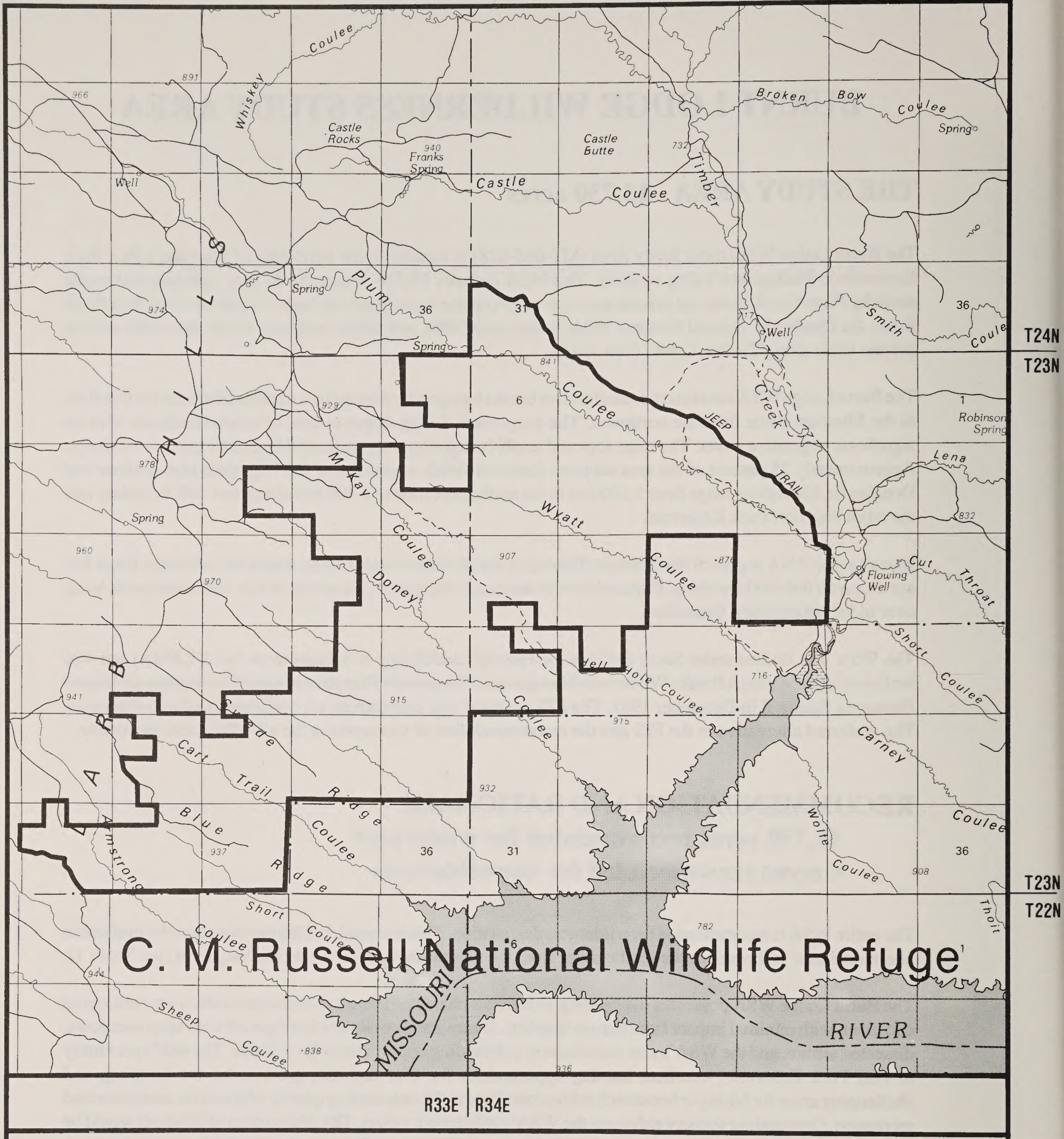
RECOMMENDATION AND RATIONALE -
13,730 acres recommended for wilderness
0 acres recommended for nonwilderness

The entire WSA is recommended for wilderness designation. This is considered the environmentally preferable alternative as it will result in the least change from the natural environment over the long term (see Table 1).

The Burnt Lodge WSA possesses outstanding wilderness characteristics. Its naturalness values are considered excellent, with minimal impact from human imprints. Dense stands of timber interspaced with open meadows, dissected terrain, and the WSA's size contribute to outstanding opportunities for solitude. The unit's proximity to Fort Peck Reservoir, excellent hunting opportunities for deer and elk, good cover for camping, and challenging areas for hiking or horseback riding contribute to the outstanding quality of primitive nonmotorized recreation. Outstanding scenery enhances the WSA's wilderness values. The designation of this tract would be advantageous to the quality and diversity of the National Wilderness Preservation System.

The WSA is contiguous to the 22,976-acre Burnt Lodge study unit of the Charles M. Russell National Wildlife Refuge. This area is managed by the U.S. Fish & Wildlife Service, which has recommended that the unit be designated wilderness. The additional size and outstanding wilderness values of the BLM unit would supplement the wilderness values in the CMR unit.

Conflicts with other resource uses of the Burnt Lodge WSA are limited. The WSA contains approximately 26 percent post-FLPMA oil and gas leases. Under a wilderness management policy, no exploration or development work that might impair wilderness values would be allowed on those leases. Thus long-term conflicts with development of the mineral resource are possible; however, U.S. Geological Survey Bulletin 1722-A (1987)


C. M. Russell National Wildlife Refuge
MISSOURI
RIVER
T24N
T23N
T23N
T22N
R33E
R34E
Castle Rocks
940
Franks Spring
Castle Butte
Castle Coulee
Broken Bow Coulee
Spring
Whiskey Coulee
Timber Creek
Smith Coulee
Well
Spring
Plum Coulee
JEEP TRAIL
Robinson Spring
Lena
Mckay Coulee
Wyatt Coulee
Doney
Flowing Well
Cut Throat
Short Coulee
Hell Hole Coulee
Coulee
Carney Coulee
Cart Trail
Swede
Ridge
Blue Coulee
Ridge
Armstrong
Wolfe Coulee
Thoit
Short Coulee
Sheep Coulee
B A R
H I L L S
966
891
974
978
960
970
941
929
841
907
876
915
915
716
932
937
908
782
944
838
836
732
717
832
36
31
36
6
1
36
31
36
1
6
1

	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
NONE	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

-N-

Burnt Lodge Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-065-278
SEPTEMBER 1, 1990

suggests that the WSA has only a moderate energy resource potential for oil and gas and coal, a low potential for geothermal energy, and a low mineral resource potential for all metallic minerals. No development is projected in the foreseeable future.

The impact of wilderness designation on grazing permittee operations would be quite low: few projects exist in the WSA (four small reservoirs and 6.25 miles of fence) and none is proposed. No commercial timber resources are present. The WSA receives a minimal amount of ORV use primarily during the big game hunting season, but this is mainly on boundry roads. The recommendation will have minimal impact on ORV use.

Table 1
Land Status and Acreage Summary of the Burnt Lodge WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	13,730
Split Estate	0
Inholdings (state, private)	0
Total	13,730
Within the Recommended Wilderness Boundary	
BLM (within WSA)	13,730
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	13,730
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	0
Split Estate	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings (state, private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The Burnt Lodge WSA is predominately natural. The vegetation and rugged topography hide the few range developments. The ten vehicle ways within the WSA are located on flat ridge tops that traverse the unit from the north and west. Most of the vehicle ways show old signs of construction but are seldom used and are difficult to follow. The overall influence of human imprints on the naturalness of the area as perceived by the average visitor is negligible.

Solitude: Most of the WSA offers outstanding opportunities for solitude. The dissected river-breaks topography has been formed by tributaries that drain into the Missouri River from the northwest. The steep slopes consist of eroded, unvegetated badlands, but low prairie grasses and forbs cover the majority of the area. The WSA is long and narrow, ranging up to 10 miles in length and from 1/4 to 5 miles in width.

Sparsely populated and undeveloped lands surround the WSA. Approximately 25 percent of the tract displays scattered ponderosa and lodgepole pine, juniper and Douglas fir. Conifers offer excellent vegetative screening along the northern border and ridgetops. The few offsite impacts that affect solitude are traffic on the boundary roads and two homesites on the northwest edge. These homesites are on ridge tops that overlook two large drainages inside the WSA, affecting 400-800 acres. The road that parallels the west boundary and the Plum Creek Road on the northeast are often used by owners of the adjacent lands. Farming operations within 1 mile of the WSA are visible from the border and from some of the northwestern ridges. The best opportunities for solitude are found in the southern half of the WSA because of the few developments there and the distance from outside distractions.

Topography and vegetation screen traffic on adjacent roads. Other minor offsite impacts include motorized boat travel on the Fort Peck Reservoir. National Guard aircraft on training missions fly over the WSA an average of eight times weekly at 4,000 feet elevation. These occasional flights periodically disrupt the solitude in the unit.

Primitive and Unconfined Recreation: The WSA offers outstanding primitive recreation opportunities. The diverse opportunities that are possible include hiking, camping, big game hunting, horseback riding, rock climbing and photography. Hunting for elk and deer is the most popular use with pressure heaviest in September during the archery season.

One drawback to the recreational use of the area is a lack of drinking water. Moreover, rain or snow often makes the dirt roads impassable, limiting recreational access to July-October during dry weather. Recreational access is mostly controlled by private landowners but public access is available at the eastern end of Timber Creek Road or by walking through a portion of the CMR.

Special Features: The Burnt Lodge WSA has a very scenic, rugged appearance. The eroded terrain offers exposed sandstone, sheer walls, and castle-like formations to the sightseer.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems as represented by ecosystems: This WSA is classified as grama-wheatgrass-needlegrass ecotype M3110/57. Thirteen other BLM WSAs of this ecotype are being studied for potential wilderness designation. See Table 2.

Table 2
Ecosystem Representation (1981)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama,Needlegrass, Wheatgrass Type	1	20,892	0	0
	MONTANA			
	1	20,892	13	215,127

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of two major population centers in Montana. The need for additional wilderness opportunities for urban dwellers within a five-hour drive of this WSA is not a significant consideration in the area's suitability for wilderness designation.

Table 3
Wilderness Opportunities for Residents of Major Population Centers (1981)

	NWPS Areas		Other BLM Studies	
Population Centers	**areas**	**acres**	**areas**	**acres**
Great Falls	18	8,674,000	11	156,000
Billings	11	4,559,000	12	216,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would add little to the geographic distribution of wilderness in the area. The four-state region of Wyoming, Montana, Idaho and North Dakota contains twenty-nine designated wilderness areas encompassing 9.3 million acres. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action. The designated wilderness areas are dispersed throughout western Montana, northern Wyoming and eastern Idaho. Most of the presidentially endorsed areas are in central Montana near the Burnt Lodge Study Area.

Manageability (The area must be capable of being effectively managed to preserve its wilderness character):

The entire 13,730 acres of the WSA that is recommended for wilderness designation can reasonably be managed as wilderness to preserve values now present in the area. Although there are minor manageability concerns, the Burnt Lodge WSA could be effectively managed in the long term as wilderness.

Two homesites have been constructed on the northwest edge of the WSA. Only minor further development of adjacent private lands is anticipated. However, if the privately owned tracts are extensively developed in the future, opportunities for solitude near the northwest edge of the WSA would be affected.

Two 640-acre parcels, one privately owned and one state-owned, create a manageability problem in the southeast corner (T.24 N., R.34 E.) and should be acquired if the area is designated wilderness. These parcels are extremely important to the long-term manageability of the WSA as they are an integral link between the presidentially endorsed wilderness study unit in the CMR and the Burnt Lodge WSA.

Energy and Mineral Resource Values

The U.S. Geological Survey and the Bureau of Mines released USGS Survey Bulletin 1722-A for the Burnt Lodge WSA in 1987. This study revealed that the potential for discovering recoverable amounts of all metallic minerals and geothermal resources is rated low, while there is a moderate probability of finding natural gas, oil and coal.

Approximately 3,610 acres (26 percent of the WSA) are included in post-FLPMA oil and gas leases. Thus there is some potential for the major loss of opportunities to explore for natural gas and oil. On the other hand, the WSA's rough terrain, which limits easy access to most areas, would severely restrict the exploration and development of these oil and gas leases. No production of any mineral resources is presently occurring in the Burnt Lodge WSA.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation or nondesignation of the entire WSA as wilderness.

Table 4
Comparative Summary of Impacts for the Burnt Lodge WSA

Issue	All Wilderness (Proposed Action)	No-Wilderness Alternative
Impacts on Wilderness Values	Naturalness would be enhanced along the ridges in the northwest portion of the WSA. Outstanding opportunities for solitude would be retained in the southeast 50% and would be enhanced in the northwest 50%.	The wilderness values of the WSA would be retained.
Impacts on Big Game Population Levels - Mule Deer	The mule deer population level would increase from a range of 65 to 110 to a range of 70-120. The elk population level would rise from a range of 160 to 195 to a range of 175-215.	There would be no impact on mule deer or elk population levels.
Impacts on Livestock Management and Existing Range Project	Annual labor requirements would increase by 175 hours and costs would increase by $660.	There would be no impacts on livestock management or range project maintenance levels. Maintenance Levels
Impacts on Recreation ORV Use Levels	Recreational ORV use levels would decline from 500 to zero.	There would be no impacts to recreation ORV use levels.

Local Social and Economic Considerations

Local attitudes, particularly those of BLM permittees, are mostly negative toward wilderness designation - though they appear to be less negative for the Burnt Lodge study area than for other WSAs. Some area residents view designation as interference by the federal government. They feel designation would restrict ranchers' ability to manage their operations in such areas as constructing and maintaining water developments, controlling noxious weeds, or fighting fires. Some individuals question the perceived vagueness of the wilderness management policy.

Some residents feel that the WSA does not qualify for wilderness designation because of existing human intrusions. They believe that designation, with its restrictions on motorized vehicle use, would limit use of the WSA to the young and the healthy.

Economic concerns, especially in the livestock industry, are major issues with the local population. People associate with wilderness designation such problems as a loss of AUMs, forced changes in management procedures, or reduced sale and loan values of bordering properties. Designation, therefore, would lower impacted ranchers' expectations of being able to remain in the ranching business. If designation occurs, many ranchers feel their operations would become less viable. Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low, however.

The substitution of horse use or foot travel for casual vehicle use would increase ranchers' expenses by approximately $660 and 175 additional hours of labor annually. The potential loss in loan value for long-term ranch loans could be as much as $211,512, depending on the lender. Three operators have grazing permits in this area. Two of them have almost 90 percent of the AUMs, and would incur most of the increased expenses and reduced loan values.

Summary of WSA-Specific Public Comments

During formal public review of the draft Missouri Breaks Wilderness EIS, a total of seventy-two comments specifically addressing the Burnt Lodge WSA was received. Forty-two respondents supported wilderness designation for the entire WSA; thirty favored nonwilderness.

Three respondents recommended that the Burnt Lodge WSA be designated wilderness but gave no specific rationale. Thirty-four respondents favored the "conservationist alternative" supporting wilderness designation for Burnt Lodge but provided no specific rationale. Five respondents provided unit-specific rationales for designating Burnt Lodge. One individual stated that the area has high wilderness values and said designation would protect watersheds, soils and elk herds.

Four respondents provided specific rationale for a nonsuitable recommendation for Burnt Lodge. One individual stated that the high oil and gas potential in the area was not properly considered in the study. Two respondents stated that wilderness values do not outweigh the potential resource conflicts. One man pointed out that he would lose access to his private inholding if the area were designated and the road closed (this comment resulted in a boundary change with a deletion of 120 acres from the original WSA size).

Two individuals commented on the attention wilderness designation would draw to the area and the additional use the area would receive. Two respondents stated concerns regarding the control of wildfire and noxious weeds. They felt wilderness designation would preclude such control. Two individuals stated that designation would change hunting patterns and that increasing elk populations would threaten adjoining private lands. Twenty other persons stated that they supported nonwilderness in general.

Two federal agencies commented on the Burnt Lodge WSA, but there were no comments from state and local governmental agencies. The U.S. Army Corps of Engineers was concerned that designation of areas adjacent to the Corps' Fort Peck project lands not restrict recreational access. The U.S. Fish & Wildlife Service endorsed the BLM preferred alternative, all wilderness.

STAFFORD WILDERNESS STUDY AREA

THE STUDY AREA - 4,800 acres

The Stafford Wilderness Study Area (MT-066-250) is on the north side of the Missouri River in Chouteau and Blaine counties, near the PN Bridge Crossing. Over 90 percent of the WSA (4,346 acres) is within the Upper Missouri Wild & Scenic River corridor: 113 acres are in a designated recreational river segment, 425 are in a scenic segment, and 3,808 are in a wild segment. The north border of the WSA is formed by the Birch Creek Hill Road, the east by Boiler Bottoms Road, and the west by private land; the Missouri River forms most of the WSA's southern boundary.

The WSA is long and narrow, stretching 8 miles in length and 0.5 to 1.5 miles in width. It is located in a very rugged portion of the Missouri Breaks topography. The steep coulees are often partially vegetated. Where slopes and soils permit, the vegetation is composed of prairie grasses, sagebrush, and juniper.

This WSA is a part of the Missouri Plateau. The river here has cut a canyon 600-800 feet deep.

The Stafford WSA was studied under Section 202 of the Federal Land Policy & Management Act (FLPMA) and was included in the Missouri Breaks EIS that was filed with the EPA in December 1987. Two alternatives were developed for this WSA: a no-wilderness alternative, which is the recommendation in this report, and an all-wilderness alternative.

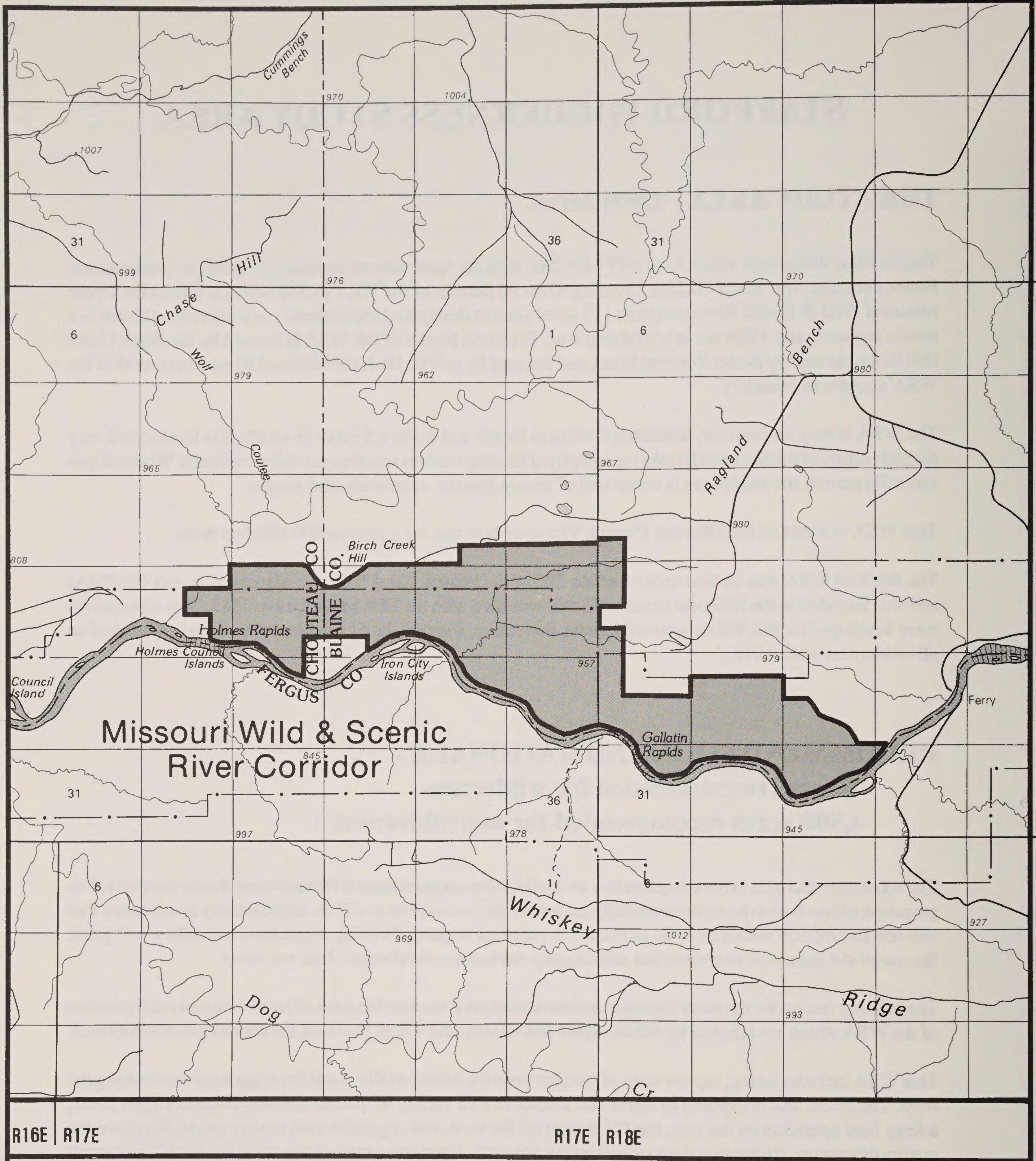
RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
4,800 acres recommended for nonwilderness

The recommendation is to not designate this area wilderness and to release it for uses other than wilderness. The proposed action is not the environmentally preferred alternative, but it will be implemented in a manner that will use all practical means to avoid or minimize potential impacts. Existing regulations and policy will guide the use of the resources to ensure that unnecessary environmental damage does not occur.

The primary reason for the nonwilderness recommendation is the combination of small size and configuration of the WSA which are affected by offsite sights and sounds, and a high potential for natural gas development.

This WSA includes a long, narrow strip of land between the Missouri River and the ridge tops overlooking the river. The entire unit is exposed to sights and sounds from a variety of off-site sources. Adjacent farm fields, a ferry boat operation on the east, the PN Bridge on the west, and regularly used county roads all reduce the quality of solitude. Recreational opportunities are primarily limited to camping use along the river. The overall quality of primitive and unconfined recreation is not outstanding. This WSA would not add outstanding quality or diversity to the National Wilderness Preservation System (NWPS).

BLM geologists have rated this WSA as having a high potential for natural gas reserves. The area borders the western edge of the established Leroy Gas Field and there is a producing natural gas well 3 miles to the east. The recommendation not to designate this small area as wilderness would allow future exploration and development of natural gas if discovered. Nearly the entire WSA falls within the Upper Missouri Wild and Scenic River Corridor. This special designation will help to protect the natural character of the WSA and require significant mitigation before any surface disturbing activities could occur.


Cummings Bench
970
1004
1007
31
36
31
T24N
T23N
999
Hill
976
970
Chase
6
1
6
Wolf
Bench
979
962
980
Ragland
Coulee
967
965
980
Birch Creek Hill
808
CHOUTEAU CO
BLAINE CO.
Holmes Rapids
Holmes Council Islands
FERGUS CO
Iron City Islands
957
979
Council Island
Ferry
Missouri Wild & Scenic River Corridor
845
Gallatin Rapids
31
36
31
T23N
T22N
997
978
945
6
1
6
Whiskey
969
1012
927
Dog
Ridge
993
Cr
R16E
R17E
R17E
R18E

NONE	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
▨	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

-N-

Stafford Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-068-250
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary of the Stafford WSA

	Acres
Within the Wilderness Study Area	
BLM (surface and subsurface)	4,800
Split Estate	0
Inholdings (state and private)	0
Total	4,800
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state & private)	0
Within the Area Not Recommended for Wilderness	
BLM	4,800
Split Estate	0
Total BLM Land Not Recommended for Wilderness	4,800
Inholdings (state & private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The WSA's rugged terrain contains limited human imprints, which helps retain the area's natural appearance. Developments within the unit that are associated with livestock grazing include one stock reservoir, seven vehicle ways, and four fences.

Solitude: Isolated areas within the unit offer outstanding opportunities for solitude. At most spots, however, this value is affected by nearby homesites, vehicle use along the nearby roads, boat travel on the Missouri River, and four farm/ranch operations bordering the WSA. Fields are intensively farmed near the northeast corner of the unit and several other farming operations exist within 0.75 mile of the WSA. An active airstrip adjacent to the northern boundary serves aircraft that fly over the WSA regularly at low elevations.

The Stafford (McClelland) Ferry county road is a heavily used route on the eastern boundary that further reduces solitude, as does the traffic associated with the PN Bridge to the west of the WSA.

Military aircraft conduct low-level training flights daily over the WSA which periodically disrupt solitude.

Primitive and Unconfined Recreation: The WSA does not contain outstanding primitive recreation opportunities. Big game hunting and boating use along the Missouri River are the major activities.

Special Features: The WSA is very scenic and rugged, combining steep slopes of exposed clay and soil layers with narrow ridges. The area is on the route of Lewis and Clark's Expedition up the Missouri River and is therefore part of the National Lewis & Clark Historic Trail.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems as represented by ecosystems: The Stafford WSA is in the Great Plains Shortgrass Prairie Ecoregion (3110). It is classified as grama-wheatgrass-needlegrass ecotype (subgroup-057). Currently the National Wilderness Preservation System (NWPS) contains one representative of this ecotype. Thirteen other BLM WSAs of this ecotype are being studied for potential wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	224,077

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five-hours driving time of two major population centers in Montana - Great Falls and Billings. The need for additional wilderness opportunities for urban dwellers within a five-hour drive of this area is not a significant consideration in its suitability for wilderness designation.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Great Falls	18	8,674,000	11	156,000
Billings	11	4,559,000	12	216,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would add little to the geographic distribution of wilderness in the area. The four-state region of Wyoming, Montana, Idaho and North Dakota contains twenty-nine designated wilderness areas encompassing 9.3 million acres. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action. The designated wilderness areas are dispersed throughout western Montana, northern Wyoming and eastern Idaho. Most of the presidentially endorsed areas are in central Montana near the Stafford Study Area.

Manageability (the area must be capable of being effectively managed to protect its wilderness character):

This WSA is not manageable as wilderness. A power site classification involves 1,787 acres of the unit. Also, the high-potential natural gas reserve and the nearby Leroy Gas Field indicate that a minimum of two gas wells could be drilled on public land within the WSA. Oil and gas leases could have a significant impact on wilderness manageability. Nearly 85 percent of the area contains pre-FLPMA oil and gas leases. These leases could be explored and developed even if they impair wilderness characteristics. Offsite sights and sounds would make wilderness management impractical.

Energy and Mineral Resources

The potential for discovering economically recoverable amounts of oil is rated low to moderate by BLM geologists. The unit has a high potential for natural gas. Approximately 5 percent of the WSA is under post-FLPMA lease. There are no pre-FLPMA leases.

The potential for coal and bentonite is rated low.

Impacts on Resources

The following comparative impact table summarizes the impacts for both alternatives considered - no wilderness and all wilderness.

Table 4
Comparative Summary of Impacts - Stafford WSA

Issues	No Wilderness (Proposed Action)	All-Wilderness Alternative
Impacts on Wilderness Values	Wilderness protection would be forgone for 4,800 acres. UMWSR corridor status still protects much of area.	Designation would protect a small area with good opportunities for solitude.
Impacts on Oil and Gas Development Levels	There would be no impact on oil and gas development levels. wild segments remain closed to development, scenic and recreational segments cannot suffer environmental or scenic damange.	The opportunity to drill for two gas wells would UMWSR status means be forgone.
Impacts on Big Game Population Levels - Mule Deer	Mule deer population levels would not be impacted. Temporary displacement could occur during gas well development.	There would be no significant impact.

Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock checking or range development maintenance levels.	Range development maintenance and the checking of livestock could continue, but 2 permittees would incur added yearly costs of $130 and 35 hrs.
Impacts on Recreational ORV Use Levels	There would be no impact on levels of recreational ORV use.	4,800 acres would be closed to motorized recreation. 2.75 miles of vehicle ways would be closed. Opportunities for primitive recreation would be enhanced.

Local Social and Economic Considerations

Wilderness designation would lower impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as reductions in animal unit months (AUMs) or policy modifications that prevent range improvement construction and maintenance, will be forthcoming under wilderness designation. Local ranchers are also concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation.

If designation occurs, many ranchers feel their operation would become less viable. Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low, however.

The substitution of horse use or foot travel for routine vehicle use would increase expenses by approximately $130 and thirty-five additional hours of labor annually. The potential loss in loan value for long-term ranch loans could be as much as $20,144, depending on the lender. Two operators have grazing permits in this area. Since both currently use the vehicle ways, any increased expenses would be shared.

Summary of WSA-Specific Public Comments

A number of public comments were received during the inventory phase of the wilderness review for the Stafford WSA. Some were deferred to the study phase and were not considered in selection of the area as a WSA. Deferred to the study phase were these comments: farm buildings are visible from most points, and future exploration for oil and gas within the unit depends on its final designation.

Three respondents recommended that the Stafford WSA be designated wilderness but provided no rationale. Thirty-four respondents favored the "conservationist alternative" supporting wilderness designation for Stafford as part of an overall package, but gave no specific rationale.

There were two specific comments from those favoring wilderness designation. One respondent felt that BLM's identification of potential mineral conflicts was not a proper criterion and that potential conflicts with grazing could be resolved with wilderness designation.

Twenty-nine respondents stated that they preferred the no-wilderness alternative, but provided no rationale.

One federal agency commented on the Stafford WSA. The National Park Service suggested that, for areas recommended for nonwilderness in the Wild & Scenic River Corridor, additional protection should be considered in order to protect such lands from potential mineral development. No state or local government entities submitted any WSA-specific comments.

ERVIN RIDGE WILDERNESS STUDY AREA

THE STUDY AREA - 10,200 acres

The Ervin Ridge Wilderness Study Area (MT-066-253) is north of the Missouri River in Blaine County, Montana, about 10 miles east of the Stafford (McClelland) Ferry crossing. There are 5,061 acres along the southern boundary of this WSA that are in a wild segment of the Upper Missouri National Wild & Scenic River management corridor. The WSA's boundaries are formed on the north by the Lone Tree/Ervin Ridge Road, on the west by the Barnard Ridge Road and private land, and on the east by state land. (See map.)

This unit is irregularly shaped, being about 10 miles long and 0.5 to 2.75 miles wide. The topography is rugged, and many steep and highly eroded ridges drop sharply to the Missouri River. Where slope and soil conditions allow, the vegetative cover is predominately short prairie grasses and sagebrush, while 20 percent of the area contains groves of ponderosa and lodgepole pine, juniper, and Douglas fir. Vegetation growing along drainages and on some ridgetops provides some screening, primarily in the eastern half of the unit.

The Ervin Ridge WSA is part of the Missouri Plateau, where the Missouri River has cut a canyon 600-800 feet deep. Exposed rock in this area is composed largely of sedimentary shales and sandstones. This topography was formed during the Pleistocene Period when the ice sheet covering the region melted. The Missouri River established a course south of the Bears Paw and Little Rocky Mountains, cutting deeply into the soft shales and sandstones. This process formed the numerous steep hills and deep coulees typical of the Ervin Ridge WSA.

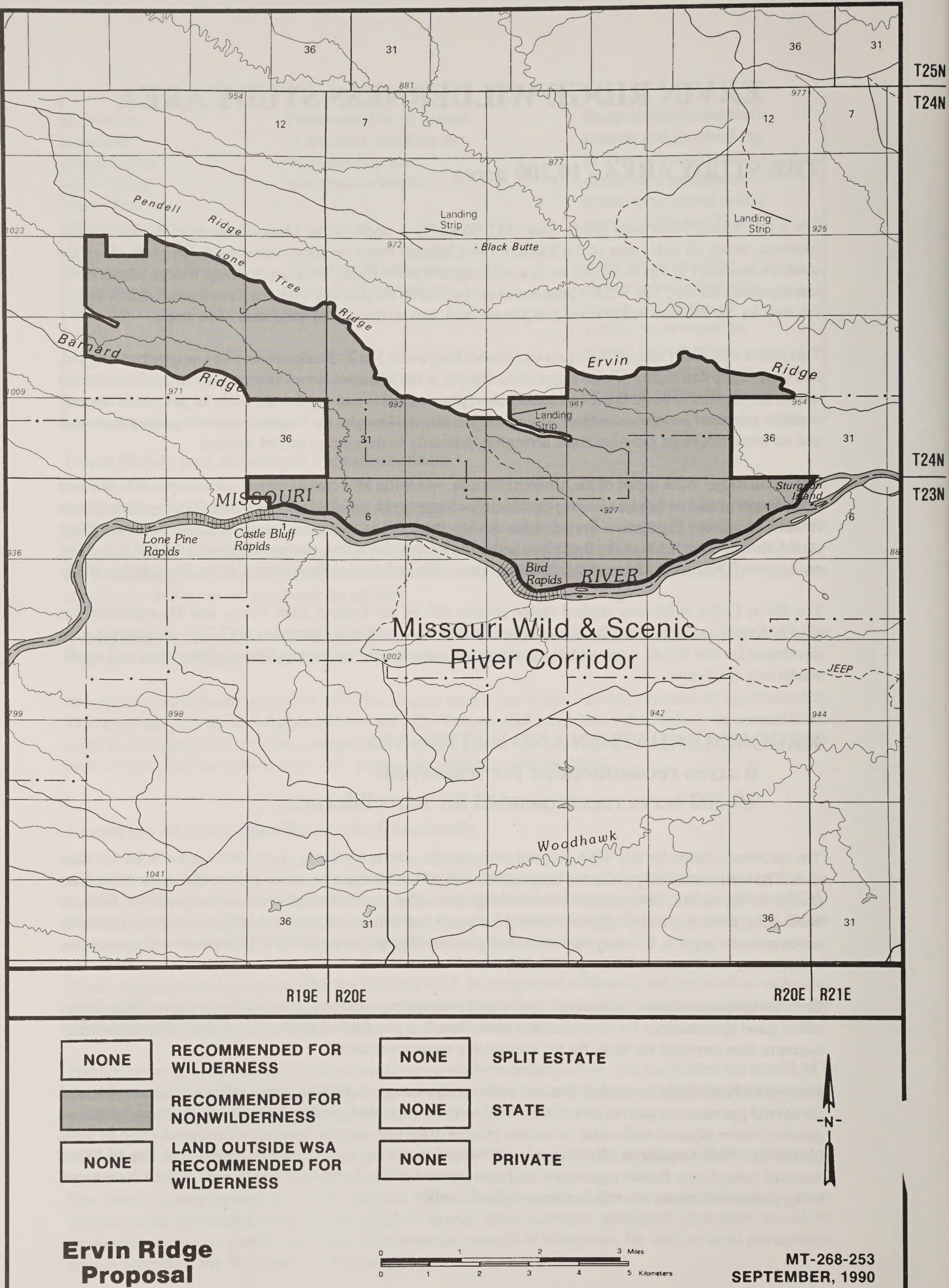
The Ervin Ridge WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the Missouri Breaks EIS that was filed in December 1987. Two alternatives were developed for this WSA: a no-wilderness alternative, which is the recommendation in this report, and an all-wilderness alternative.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
10,200 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area as wilderness and to release the WSA for other uses. The environmentally preferred alternative is the all wilderness alternative as it would result in the least change to the natural environment over the long term. The recommendation not to designate the WSA as wilderness, however, will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts. Existing regulations and policy will guide the use of the WSA's resources to ensure that unnecessary environmental damage does not occur.

Ervin Ridge contains several deep drainages where outstanding opportunities for solitude are available; it also offers good opportunities for nonmotorized recreation. But a variety of resource conflicts and manageability concerns also provided the basis for the nonsuitable recommendation.

Portions of Ervin Ridge are included in two undefined known geologic structures (KGS) which have potential for natural gas reserves, and the potential for long-term conflicts with gas development is high. There have been gas discoveries adjacent to the area. Seventeen percent of the unit contains leases held from production by wells outside the WSA boundaries. Those leases will not expire as long as production is maintained. The BLM has minimal control over further exploration and development of these particular leases, with surface disturbance being permissible under the valid existing rights criteria.


36
31
36
31
T25N
T24N
881
954
977
12
7
12
7
877
Pendell
Ridge
Landing Strip
Landing Strip
972
Black Butte
925
1023
Lone
Tree
Ridge
Barnard
Ridge
Ervin
Ridge
1009
971
992
961
954
Landing Strip
36
31
36
31
T24N
T23N
MISSOURI
Sturgeon Island
927
1
6
1
6
Lone Pine Rapids
Castle Bluff Rapids
936
Bird Rapids
RIVER
Missouri Wild & Scenic River Corridor
1002
JEEP
799
898
942
944
Woodhawk
1041
36
31
36
31
R19E
R20E
R20E
R21E
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Ervin Ridge Proposal

MT-268-253
SEPTEMBER, 1990

The area has been rated by BLM geologists as having a high structural potential for natural gas. Any work on the pre-FLPMA leases would pose a potential loss of some wilderness values: These leases permit exploration and development, whether or not the WSA is designated wilderness. To date, six wells have been drilled inside the WSA boundaries, but none has been producing. There are several producing wells adjacent to the WSA, however. Thus, because of drilling success in the area and because distribution lines to move the gas from the area to local markets already exist, there is a good probability that additional exploration will occur on pre-FLPMA leases inside this WSA.

Nine mining claims are located on possible diamond-bearing formations. The likelihood of mining is small, but the development of these claims could cause some loss of wilderness values.

The area will continue in multiple-use management. The WSA's Upper Missouri Wild & Scenic River (UMWSR) designation will continue to provide protection for resource values on 5,061 acres.

Table 1
Land Status and Acreage Summary of the Ervin Ridge WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	10,200
Split Estate	0
Inholdings (state & private)	0
Total	10,200
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state & private)	0
Within the Area Not Recommended for Wilderness	
BLM	10,200
Split Estate	0
Total BLM Land Not Recommended for Wilderness	10,200
Inholdings (state & private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENTATION

Wilderness Characteristics

Naturalness: From many vantage points this area appears natural. Its rugged terrain has limited most of the developments to ridgetops or to spots near access routes, so most of the affected areas are near the boundaries or along the two cherry-stemmed roads. In particular, the eastern half of the WSA (which contains abundant timber stands), the coulee bottoms below the ridge lines, and portions along the Missouri River appear natural. Because the few human features are scattered throughout the unit, boundary modifications would not significantly increase the apparent naturalness.

Solitude: The area contains some opportunities for outstanding solitude. Solitude in certain parts of this unit is affected by the boundary configuration, by outside sights and sounds, and by the two cherry-stemmed roads.

Within the unit, a wilderness user is never more than a mile from the boundary. Many disruptions - the sights and sounds of farming, vehicle traffic on the boundary roads and cherry-stemmed roads, and activities around three homesites near the west boundary - impact solitude in the WSA. On the Barnard and Pendell ridges, nearby wheat-farming operations can be seen and heard from most locations in the WSA, while mechanized farming operations across the Missouri River are visible from the unit's ridgetops. Motorized traffic on the Missouri River during the May-to-September floating season is a further infringement.

Military aircraft are scheduled to fly over the area daily at 4,000 feet, causing periodic disruptions of solitude throughout the area.

Although opportunities for solitude exist in this area, especially within the southeast portion, a variety of influences from outside the WSA diminish its extent and quality.

Primitive and Unconfined Recreation: The WSA does not contain opportunities for outstanding primitive recreation. Hunting for big game and floating activities on the Upper Missouri Wild & Scenic River are the two most common forms of recreational use. Hunting is usually done from vehicles traveling along the ridgetops or by boats from the Missouri River. Within the WSA, hunting is complicated by the difficulty of retrieving game from the steep slopes. Other forms of recreation that could occur in the unit include horseback riding, hiking, sightseeing, photography, and fishing from the riverbank.

Access to the area is limited. The primary access points are via the Lone Tree/Ervin Ridge and Barnard Ridge boundary roads, both of which are controlled by private landowners, and from the Missouri River by boat. Wet weather and snow often make the dirt roads impassable and can quickly seal off the area, limiting access to May-October during dry weather.

Although there are opportunities for recreation, they are limited by the WSA's steep terrain, which tends to channel users to the Missouri River or to the ridges or coulee bottoms.

Special Features: The WSA is very scenic and rugged, combining steep slopes of exposed clay and soil layers with narrow ridges. The area is on the route of Lewis and Clark's expedition up the Missouri River and was later settled by homesteaders. A few deteriorated old homesites still exist in or near the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems as represented by ecosystems: The Ervin Ridge WSA is in the Great Plains Shortgrass Prairie Ecoregion (3110). It is classified as a grama-wheatgrass-needlegrass ecotype (subgroup-057). Currently the National Wilderness Preservation System (NWPS) contains one representative of this ecotype. Thirteen other BLM WSAs of this ecotype are being studied for possible wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass type	1	20,892	0	0
	MONTANA			
	1	20,892	13	218,677

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of two major population centers in Montana - Great Falls and Billings. The need for additional wilderness opportunities for urban dwellers within a five-hour drive of this area is not a significant consideration in its suitability for wilderness designation.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
reat Falls	18	8,674,000	11	156,000
illings	11	4,559,000	12	216,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would add little to the geographic distribution of wilderness in the area. The four-state region of Wyoming, Montana, Idaho and North Dakota contains twenty-nine designated wilderness areas encompassing 9.3 million acres. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action. The designated wilderness areas are dispersed throughout western Montana, northern Wyoming and eastern Idaho. Most of the presidentially endorsed areas are in central Montana near the Ervin Ridge Study Area.

Manageability (the area must be capable of being effectively managed to protect its wilderness character):

This WSA is not manageable as wilderness. No single management conflict leads to a conclusion that the Ervin Ridge WSA could not be managed as a wilderness area. It could not be effectively managed over the long term because two cherry-stemmed roads penetrate the unit to lengths of 0.5 and 1.25 miles, and because vehicle use would periodically impact solitude in the western third of the unit.

The WSA contains nine lode mining claims on possible diamond-bearing formations. The potential that these claims are diamond-bearing is low (Hearn 1977, BLM 1982) and the cost of extracting the mineral resource is high. Therefore, it is not expected that the claims will be mined. If they were mined and proved to be economically feasible, however, patents could be requested and granted. The ensuing mining activities would significantly affect the wilderness characteristics of the unit.

Portions of the unit are within two undefined known geologic structures and 17 percent of the unit contains pre-FLPMA oil and gas leases. Approximately 2,100 acres are included in producing leases, which will not expire as long as production is maintained. Pre-FLPMA leases can be explored and developed even if they impair wilderness values. Therefore, since more exploration is expected, this activity could create a significant wilderness manageability problem.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of oil is rated low by BLM geologists, while there is a high probability of finding natural gas in this unit. Approximately half of the WSA is leased for oil and gas. About 17 percent of the acreage is under pre-FLPMA oil and gas leases and another 37 percent is under post-FLPMA leases.

Wilderness designation would not affect the pre-FLPMA oil and gas leases: Inherent in such leases is the right to explore for and develop reserves. In the short term (the life of the pre-FLPMA leases) there would be no impact to development of the minerals resource. There is a good possibility that additional exploration will occur on the pre-FLPMA leases because of the high probability of success in the field and the existing grid of distribution pipelines nearby.

Impacts on Resources

The following comparative impact table summarizes the impacts for both alternatives considered - no wilderness and all wilderness.

Table 4
Comparative Summary of Impacts - Ervin Ridge WSA

Issues	No Wilderness (Proposed Action)	All-Wilderness Alternative
Impacts on Wilderness Values	Naturalness would be reduced on 25% of the WSA along the western and northern boundaries by gas well development. Opportunities for solitude and for primitive and unconfined recreation would be reduced 25% by gas development activities.	The naturalness of 20% of the WSA along the northern boundary would be enhanced by the revegetation of vehicle ways. Opportunities for solitude or for primitive and unconfined recreation would be enhanced on 25% of the WSA by the elimination of recreational ORV use and the reduction of mechanized-equipment use for range maintenance.
Impacts on Big Game Population Levels - Mule Deer	Mule deer population levels would not change. Temporary displacement would occur during gas well development.	Mule deer population levels would increase slightly, from a range of 40 to 160 to a range of 45 to 175.
Impacts on Oil and Gas Development	There would be no impact on oil and gas development levels.	The opportunity to drill eight gas wells would be forgone.
Impacts on Livestock Management and Existing Range Project Maintenance	There would be no impact on livestock management or on the maintenance of range projects.	Range development maintenance and the checking of livestock could continue, but the 2 permittees would incur added annual costs of $240 and 65 hours of labor.
Impacts on Recreational ORV Use	There would be no impacts on levels of recreational ORV use.	Recreational ORV use would decline from 100 RVDs to zero.

Local Social and Economic Considerations

Wilderness designation would lower impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as reductions in animal unit months (AUMs) or policy modifications that prevent range improvement construction and maintenance, will be forthcoming under wilderness designation. Local ranchers are also concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If designation occurs, many ranchers feel their operation would become less viable. Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low, however.

The substitution of horse use or foot travel for routine vehicle use would increase expenses by approximately $240 and sixty-five additional hours of labor annually. The potential loss in loan value for long-term ranch loans could be as much as $20,144, depending on the lender. Two operators have grazing permits in this area. Since both currently use the vehicle ways, any increased expenses would be shared.

Revenues lost by the county from any oil or gas production forgone would not be significant based on present revenue generated in the surrounding areas and because of the small size of this WSA.

Summary of WSA-Specific Public Comments

A number of public comments were received during the inventory phase of the wilderness review for the Ervin Ridge WSA. Some of these comments were deferred to the study phase and were not considered in selection of the area as a WSA. Deferred to the study phase were the following comments: farm buildings are visible from most points; the area has private and state lands within the boundaries; future oil and gas exploration within the unit depends on its final designation.

Three respondents recommended that Ervin Ridge be designated wilderness but provided no rationale. Thirty-four respondents favored the "conservationist alternative" supporting wilderness designation for Ervin Ridge as part of an overall package, but gave no specific rationale.

There were two specific comments from those favoring wilderness designation for Ervin Ridge. One respondent felt that BLM's identification of potential mineral conflicts was not a proper criterion and that potential conflicts with grazing could be resolved with wilderness designation.

Twenty-nine respondents stated that they preferred the no-wilderness alternative, but provided no rationale.

One federal agency commented on the Ervin Ridge WSA. The National Park Service suggested that, for areas recommended for nonwilderness in the Wild & Scenic River Corridor, additional protection should be considered in order to shield such lands from potential mineral development. No state or local government entities submitted any WSA-specific comments.

COW CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 34,050 acres

The Cow Creek Wilderness Study Area (MT-066-256) is located north of the Missouri River in Blaine and Phillips counties, Montana. This WSA contains 34,050 acres of BLM lands. It is bounded on the north by private and state lands and other public tracts; on the west by Badland Ridge Road, private and state lands, and other public tracts; on the south by Cow Island Recreation Road, Power Plant Ferry Road and private lands; and on the east by Cabin Coulee and Coyote Coulee roads and private and state lands. (See map.)

Cow Creek is about 15 miles long and up to 7 miles wide. Most of the terrain in the many drainages that feed into Cow Creek and the Missouri River is rugged and steep. The Bull Creek, Winter Creek, and Hay Coulee drainages display spectacular sandstone cliffs. In sharp contrast, other parts of the WSA exhibit rolling open prairie, particularly toward the southeast corner. Where slopes and soils allow, the vegetative cover is predominantly short prairie grasses, sagebrush and greasewood. Ponderosa pine, lodgepole pine, Douglas fir, and juniper are prevalent throughout the unit, with the densest stands growing along the northern portion.

Cow Creek is part of the Missouri Plateau in the northern Great Plains, where the Missouri River has cut a canyon 600-800 feet deep. Exposed rock in the breaks is largely sedimentary shales and sandstone. The topography was formed during the Pleistocene period when the ice sheet that covered this region melted. The Missouri established a course south of the Bear Paw and Little Rocky Mountains, cutting into the numerous steep hills and deep coulees typical of the Cow Creek WSA.

Three alternatives were developed for this WSA: a partial-wilderness alternative which is the recommendation in this report, a no-wilderness and an all-wilderness alternative.

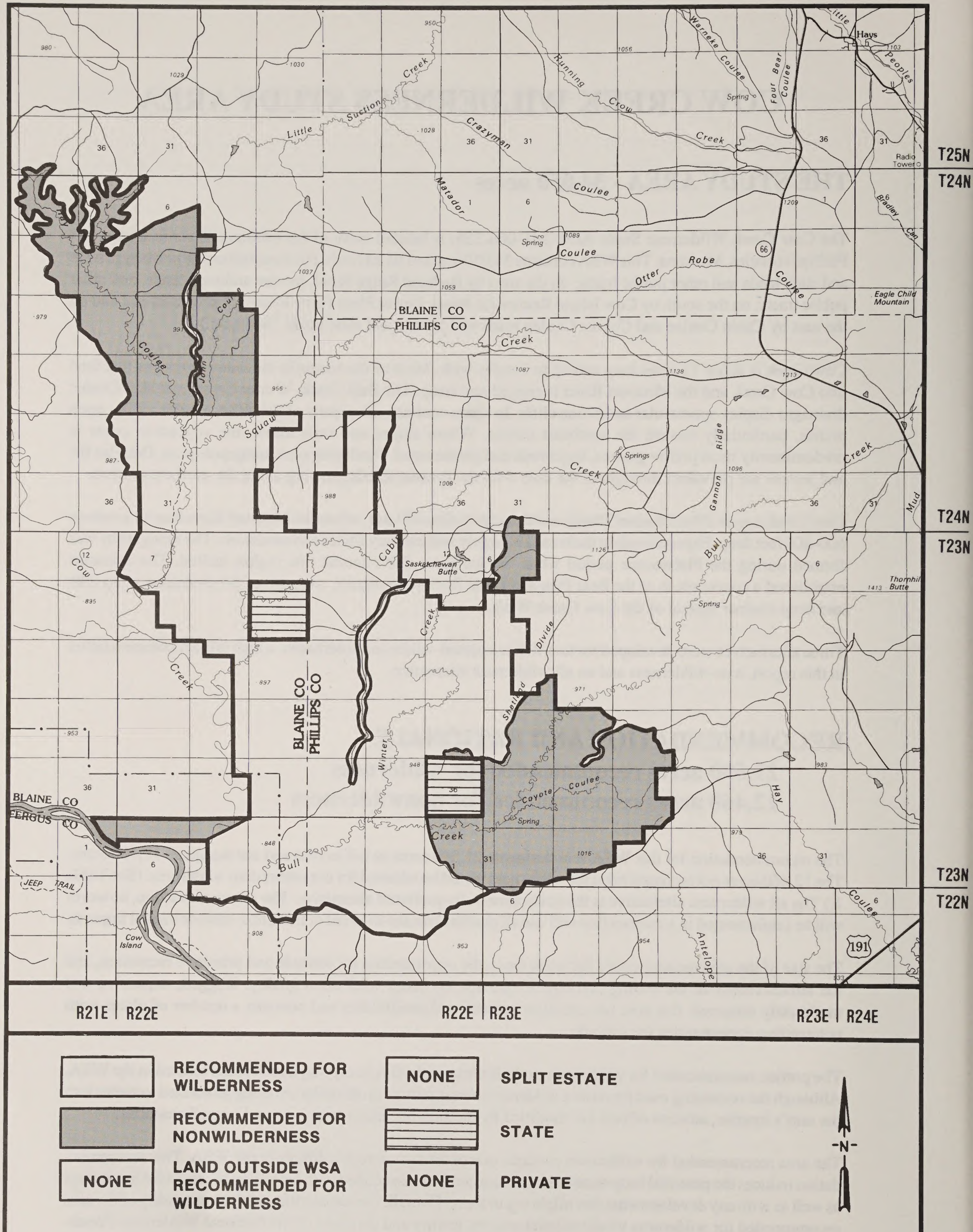
RECOMMENDATION AND RATIONALE -
21,590 acres recommended for wilderness
12,460 acres recommended for nonwilderness

The recommendation for this WSA is to designate 21,540 acres as wilderness and not designate 12,460 acres. The 12,460 acres not recommended for wilderness would be released for uses other than wilderness. (See Table 1.) The all wilderness alternative is the environmentally preferred alternative. The recommendation, however will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts.

The size of the area recommended for wilderness, the opportunities for solitude and primitive recreation, and the attractiveness of the setting combine to provide excellent wilderness quality. Rugged, expansive and moderately timbered, this area has excellent recreational possibilities and contains a number of places with outstanding opportunities for solitude.

The portion recommended for wilderness excludes four of the five cherry-stemmed roads located in the WSA. Although the remaining road presents a wilderness-management problem by allowing motorized vehicles into the unit's interior, adverse effects are modified by the suitable area's large size and rugged character.

The area recommended for wilderness contains one of the two state inholdings in the WSA. This recommendation reduces the potential long-term management conflicts associated with providing access to the inholdings as well as with any developments that might occur there. Overall, the outstanding wilderness quality of the area recommended for wilderness would supplement the quality and diversity of the National Wilderness Preservation System. These values balance the potential resource conflicts associated with designation.



T25N
T24N
T23N
T22N
R21E
R22E
R23E
R24E
BLAINE CO
PHILLIPS CO
FERGUS CO
Hays
Radio Tower
Eagle Child Mountain
Thornhill Butte
Saskatchewan Butte
Cow Island
JEEP TRAIL
Little Suction Creek
Crazyman Coulee
Matador
Running Crow Creek
Warneke Coulee
Four Bear Coulee
Little Peoples
Bradley Can
Otter Robe Coulee
Spring
Coulee
Creek
John Coulee
Squaw Creek
Cow Creek
Cabin Creek
Winter Creek
Bull Creek
Springs
Gannon Ridge
Bull Creek
Mud Creek
Divide
Shetland
Coyote Coulee
Hay Coulee
Antelope
66
191
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
NONE
PRIVATE
-N-
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Cow Creek Proposal

MT-066-256
SEPTEMBER, 1990

The area not recommended for wilderness is found primarily around the perimeter of the WSA. While containing some excellent opportunities for solitude and primitive recreation, these portions are not as outstanding as those recommended for wilderness. These areas also contain resource conflicts and wilderness-management concerns.

The presence of four cherry-stemmed roads creates a potential for periodic impacts on solitude from vehicle traffic throughout much of the area. At many points, offsite farming activities intrude within the WSA boundaries. One state inholding would pose a management concern because access to the area would be required. The acreage not recommended also contains areas where range developments are concentrated. These range projects will require regular maintenance with heavy equipment.

All of the WSA contains similar high structural potentials for natural gas reserves. The portion not recommended however, presents a greater potential for conflicts with development of the mineral resources because of closer proximity to the producing field and ease of access, being located around the perimeter of the WSA.

Table 1
Land Status and Acreage Summary
of the Cow Creek WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface	34,050
Split Estate	0
Inholdings	1,280
Total	35,330
Within the Recommended Wilderness Boundary	
BLM (within WSA)	21,590
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	21,590
Inholdings (state, private)	640
Within the Area Not Recommended for Wilderness	
BLM	12,460
Split Estate	0
Total BLM Land Not Recommended for Wilderness	12,460
Inholdings (state, private)	640

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The majority of the Cow Creek WSA appears natural. Human developments in many cases are screened by the rugged topography and vegetation. A number of fences, reservoirs and vehicle ways exist on Winter Ridge in the area recommended suitable for wilderness. These developments are screened by vegetation and rolling terrain but they do impact naturalness from a few vantage points. The remainder of the area recommended suitable appears natural.

Within parts of the WSA recommended nonsuitable, several developed areas adversely affect naturalness. A 600-acre area east of Saskatchewan Butte (T.25 N., R.23 E., Section 31, and T.24 N., R.23 E., Sections 5, 6, 7 and 8) contains two reservoirs, a diversion dam, three vehicle ways, and a power line. All are readily visible. In the northwest portion recommended nonsuitable are reservoirs, fences, seven petroleum drilling pads, and several miles of vehicle ways. Most of these features are screened by timber and broken terrain. However, they affect naturalness from some vantage points. Another developed area of about 1,500 acres of rolling prairie in the southwest corner of the unit contains six vehicle ways (totaling 3.5 miles) and two reservoirs that are not screened.

Solitude: Opportunities for solitude in the WSA are outstanding. The topography provides excellent screening. Solitude possibilities are best along Squaw, Cabin and Winter Creeks and on the lower reaches of Bull Creek, primarily in areas recommended suitable for wilderness designation. The size of these drainages combines with their lack of development to enhance solitude. One cherry-stemmed road enters the area, however, so periodic vehicle use poses some potential for disruption of solitude for persons near the road.

Solitude in the parts of Cow Creek recommended not suitable would be affected by the unit's configuration and the four cherry-stemmed roads. A farming operation that borders the study area near John Coulee and a ranch (T.25 N., R.22 E., Section 8) reduce solitude on about 1,800 acres in the northern portion. A homesite which is occupied during the summer and a road also are visible (T.25 N., R.23 E., Section 31, and T.24 N., R.23 E., Sections 5 and 6). Visitors to areas outside the major drainages and nearer the perimeter, primarily in WSA portions recommended nonsuitable, would see more potential for human contact.

In the northwestern portion of the unit near Hay Coulee, a wilderness user would never be more than one mile from the perimeter of the unit and offsite farming activities.

Small groves of conifers in the prairie terrain of Cow Creek's southeast corner provide little screening, and traffic can be seen and heard from the southern boundary road and the Coyote Coulee cherry-stemmed road.

The WSA is within a National Guard flight pattern with eight flights daily at an altitude of 4,000 feet. These flights cause periodic disruptions of solitude throughout the WSA.

Primitive and Unconfined Recreation: Although no recreational activity was considered outstanding, the diversity of opportunities available makes this area excellent for primitive recreational use.

Primitive forms of recreation include hunting, horseback riding, hiking, photography, and rock climbing. Hunting is the most popular use at present, but is normally limited to areas near access roads because of the difficulty of retrieving game. The availability of the Upper Missouri Wild & Scenic River along the part of the area recommended suitable has increased public awareness of the WSA's recreational opportunities. Several good camping sites can be found along ridges or near the river.

Access into Cow Creek is available along the northwestern and southern bounda- ries; marginal access is possible from the Missouri River through public lands. Private landowners control other accesses. Snow and wet weather normally limit access to the July-October period or during other dry times.

Special Features: Outstanding scenic features are a notable attribute of the WSA. Of particular interest is a four-mile-long sheer wall of sandstone on the west side of the Winter Creek drainage in a portion of the WSA recommended suitable.

Tipi rings, rock cairns, and a buffalo jump indicate that early peoples used the area extensively. Along the west boundary, the Nez Perce Indians traveled the well-known Cow Island Trail during their escape attempt to Canada in 1877. At the turn of the century, the Winter Creek drainage was used for catching wild horses: a box canyon above the creek formed a natural corral called "Horse Thief Pass." Along this canyon and near Shetland Divide, names that date from the early 1900s are etched in the sandstone.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as grama-wheatgrass-needlegrass ecotype. Currently there is only one representative of this ecotype in the National Wilderness Preservation System (NWPS). There are thirteen other BLM WSAs of this ecotype being studied for potential wilderness designation. The addition of this WSA to the NWPS would help balance the diversity and quality of the national system, but because of the number of other units pending designation, it was not a major consideration affecting the suitability of the WSA.

Table 2
Ecosystem Representation
(July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	1	20,892	0	0
MONTANA				
	1	20,892	13	194,827

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
Billings, Montana	13	4,819,000	76	755,000
Great Falls, Montana	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas have been designated wilderness. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen other study areas administered by the U.S. Fish & Wildlife Service which have been administratively endorsed for wilderness and are awaiting Congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character)

Although some management conflicts could occur, especially with natural-gas development, the portion of this WSA recommended suitable for designation could be managed effectively as wilderness.

Minor management concerns could arise in the area recommended suitable, but most of the potential conflicts would occur in the areas recommended nonsuitable for wilderness. The five cherry-stemmed roads create serious management problems. They enter the unit for distances of 1 to 3.5 miles. The locations of these roads are such that unrestricted vehicle use would affect solitude opportunities through much of the WSA. Four of the five roads however are in areas recommended nonsuitable for wilderness.

The WSA contains two Montana State sections used primarily for livestock grazing. A potential conflict arises because access to these areas must be provided if requested. One of the areas is in the area recommended suitable for wilderness and should be acquired if possible.

Energy and Mineral Resource Values

The U.S. Geological Survey and Bureau of Mines assessed the mineral potential of the Cow Creek WSA between 1984 and 1986. Mineral occurrences considered noneconomic include coal, clay, zeolites, gold, silver, and platinum - group elements. The area has a moderate potential for diamonds, a low potential for oil and a high resource potential for undiscovered gas.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered.

Table 4
Comparative Summary of Impacts - Cow Creek WSA

Issue	Partial Wilderness (Preferred Alternative)	All-Wilderness Alternative	No-Wilderness Alternative
Impacts on Wilderness Values	Outstanding wilderness values would be maintained for a large area.	Outstanding wilderness values would be maintained for a large area.	Probable oil and gas development and ramp project development could reduce natural values. Low impact from development anticipated.
Impacts on Big Game Population Levels	Slight potential increase in mule deer populations.	Potential for increase in mule deer. Potential increase in predator populations.	Present conditions would be maintained.

Impacts on Livestock	Many conflicts would be eliminated by the removal of project concentration areas. Fewer restricted vehicle ways would reduce the potential for added costs.	Moderate impact. Many proposed developments could not be built. Vehicle-use restrictions could increase ranchers' costs and labor.	Present conditions would be Management maintained.
Impacts on Recreational ORV Use Levels	21,500 acres and 11.75 miles of vehicle ways would be closed to motorized recreation uses.	The entire WSA would be closed to motorized recreation. Opportunities for primitive recreation would be enhanced.	Present conditions would be maintained.
Impacts on Minerals Development	Some high-potential natural gas might not be developed.	Greater possibility of forgoing natural gas development, because more acreage would be restricted.	Present conditions would be maintained.
Impacts on Ranch Economics	Ranchers would incur additional expenses of $564.	Ranchers would incur additional expenses of $1,165.	Present conditions would be maintained.
Impacts on Soils and Watershed Resources	Minor protection would be afforded. Slightly more erosion is possible than under All Wilderness.	Minor protection would result due to restrictions on surface disturbances.	Present conditions would be maintained.
Impacts on Vegetation	Same impact as All Wilderness, but on reduced acreage.	Fire would be controlled only when it threatens life or property on adjacent lands. Periodic changes in types and density of natural vegetation are possible. Vegetation protected from surface disturb-disturbance.	Present conditions would be maintained.
Impacts on Cultural Resources	Cultural sites would be protected on 21,500 acres.	Sites would be protected by limiting surface disturbances and restricting vehicle access.	Present conditions would be maintained.

Local Social and Economic Considerations

Wilderness designation would affect impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as cuts in AUMs or policy modifications that prevent range improvement construction and maintenance, will be forthcoming under wilderness designation. Ranchers also are concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If designation occurs, many ranchers feel their operation will be less viable than it was before designation.

Actual out-of-pocket costs if the area were designated have been estimated to be low. If the entire WSA were designated wilderness, a number of impacts could occur. The substitution of horse use for casual vehicle use would result in increased expenses of approximately $1,165 and about 310 additional hours of labor annually. The potential loss in loan values for long-term ranch loans could be as much as $356,297, depending on the lender. Seven operators and one grazing association use the WSA; three of these operators and the grazing association have more than 250 AUMs. The increased expenses would be split among the various operators and may be higher than estimated because of the many operations involved.

If only the part of the WSA recommended suitable is designated, the potential expense of substituting horses for casual vehicle use would drop to $564 and about 150 additional hours of labor annually. Potential loss in loan value for long-term ranch loans would be reduced but still could be as high as $225,361, depending on the lender. These potential impacts would be shared by three operators.

Revenues to the county from any oil or gas production forgone due to wilderness designation of all or part of the WSA would not pose a significant loss, based on present revenues generated in the surrounding area.

Summary of WSA-Specific Public Comments

A number of comments was received during the inventory phase of the wilderness review for the WSA. Some of these comments were deferred to the study phase and were not considered in the selection of the area as a WSA. Deferred to the study were the following comments:

This area contains state inholdings. The unit possibly could be a source of energy fuel. The area lacks solitude because of aircraft overflights and nearby agricultural activities.

Three respondents recommended that Cow Creek be designated wilderness but provided no rationale. Thirty-four comments supporting the conservationist alternatives which proposed wilderness designation for Cow Creek were submitted, but no specific rationale was offered. The conservationist alternative specifically recommends the addition of 9,600 acres west of Cow Creek that were dropped during the inventory phase and not studied for wilderness.

Five respondents provided specific rationale for designating the Cow Creek WSA. One individual stated that the BLM preferred alternative should be modified to include approximately 5,000 acres in the northern part of the WSA. Four respondents felt that lands in the Bull Creek and Coyote Coulee area (in the southeast portion of the WSA) had outstanding wilderness values, and that conflicts were not significant enough to preclude their recommendation for wilderness designation.

One respondent stated that the trimmed-down proposals have eliminated most conflicts and economic impacts to the livestock industry. That individual also pointed out that considerable gas exploration in the past had yielded no producing wells or known reserves in this unit.

Twenty-five respondents provided specific rationale for nonwilderness. Nineteen responses pointed out human influences upon the natural appearance of the unit. Twelve individuals objected to wilderness designation and possible interference with energy resource production. Six respondents indicated that designation would effectively close the area to the old, the very young, and the handicapped. Nine individuals stated that decreases in grazing authorization would occur with designation.

Five responses were received from individuals who questioned the solitude values of the area and who found oil and gas development on pre-FLPMA leases to pose a significant potential disruption to wilderness values. Four individuals cited unmanageable boundaries which could lead to conflicts between wilderness visitors and adjoining landowners.

Two responses offered the following reasons for nondesignation: the role of wilderness restrictions, especially limitations on water development, in decreasing game in the area; a lack of primitive recreational opportunities; the inclusion of a state-owned section within the proposed wilderness boundaries; the existence of the cherry-stemmed road inside the WSA; the reduced borrowing power of adjacent ranchers, part of whose BLM grazing privileges lie inside the proposed boundaries; and wilderness restrictions on full economic productivity of the land.

The following reasons generated single responses: restriction of reservoir maintenance; lack of drinking water in the area; a greater chance of environmental degradation and littering given the increased visitation expected after designation; and a loss of value for ranches whose BLM grazing leases are located partially inside the wilderness borders.

No state or local governments or other federal agencies submitted any WSA-specific comments.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition	
			Surface	*Subsurface*			*Land Costs*	*Processing Costs*
T23N, R22E, Sec. 16	640	One	State	State	No	Exchange	N/A	5,000

DOG CREEK SOUTH WILDERNESS STUDY AREA

STUDY AREA - 5,150 acres

The Dog Creek South Wilderness Study Area (MT-068-244) is on the south side of the Missouri River near the PN Bridge in Fergus County, Montana. Just over 75 percent of the WSA - 3,902 acres - is located within the Upper Missouri National Wild & Scenic River corridor. The northern border is formed by the Missouri River and the southern boundary is formed by the Dog Creek Road; on the west and east the WSA conforms to private land boundaries.

The unit measures approximately 5 miles across (east to west) and from 1 to 3 miles in length. This area contains a number of extremely deep drainages separated by narrow ridges containing short grass communities, greasewood, big sage, juniper, and native legumes. Isolated areas of ponderosa pine and Douglas fir grow primarily on the north-and west-facing slopes of the steeper drainages.

This WSA is a part of the Missouri Plateau in the Northern Great Plains, where the Missouri River has cut a canyon 600-800 feet deep. The exposed rock in the breaks topography is largely composed of sedimentary shales and sandstone. This terrain formed during the Pleistocene Period when the ice sheet covering the region melted.

The river cut deeply into the soft shales and sandstone, forming the numerous steep hills and deep coulees that are typical of the Dog Creek South WSA.

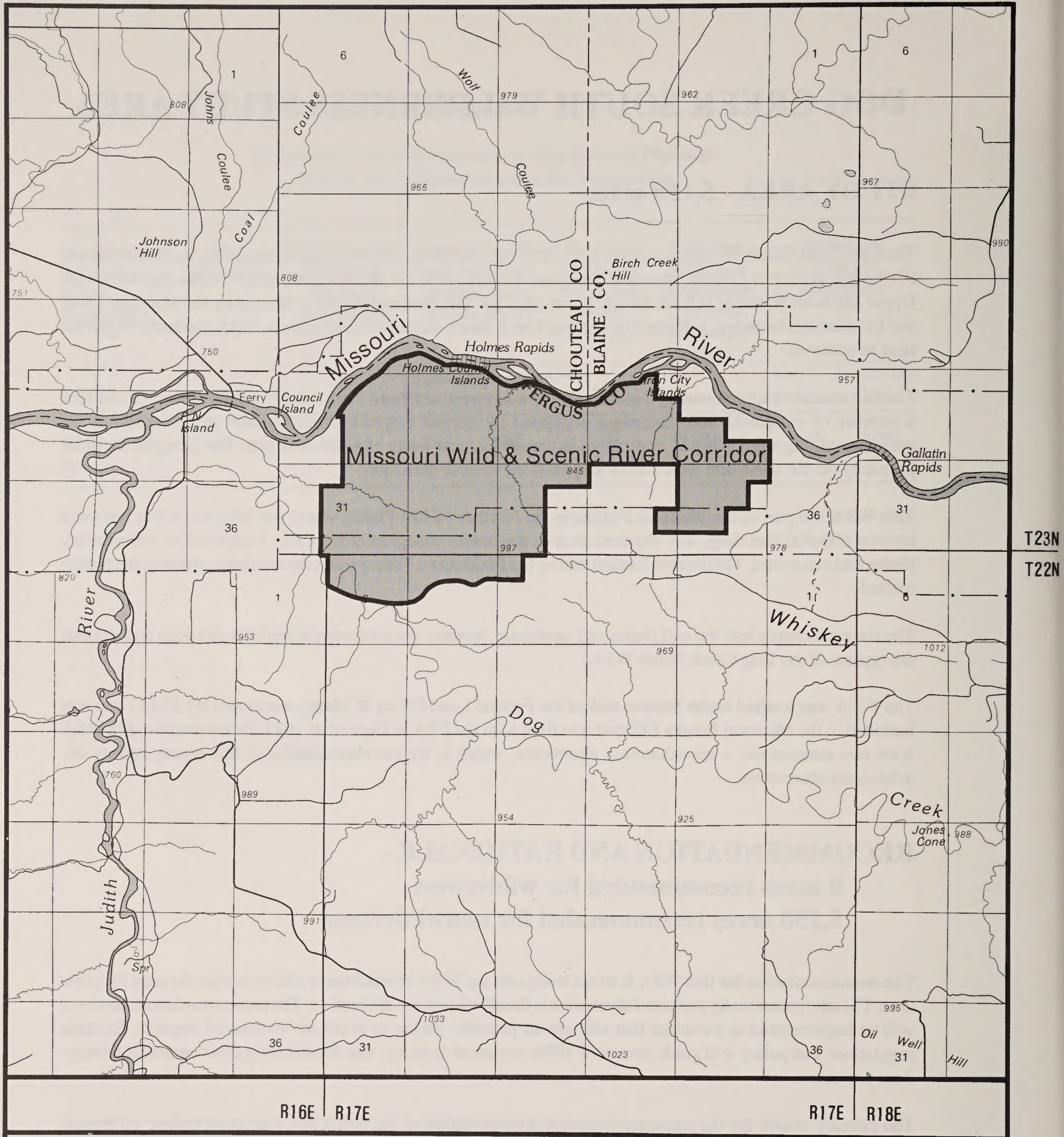
The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Missouri Breaks EIS that was filed with the EPA in December 1987. Developed for this WSA were two alternatives: a no-wilderness alternative, which is the recommendation in this report, and an all-wilderness alternative.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
5,150 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the WSA as wilderness and to release the area for other uses. The environmentally preferred alternative is the all wilderness alternative. The recommendation, however will be implemented in a manner that will use all practical means to avoid environmental impacts. Existing regulations and policy will guide the use of WSA resources to ensure that unnecessary environmental damage does not occur.

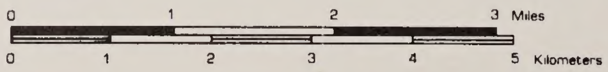
The primary reason for the recommendation is a combination of the unit's less than outstanding wilderness quality, its high potential for natural gas, and its potential for wilderness management conflicts.

The small size of this unit, along with terrain that opens to major off-site influences just beyond the boundaries, limits the opportunities for outstanding solitude to isolated areas in the deeper drainages. Present agricultural use on private lands along the eastern boundary could be expanded, which would further reduce wilderness values in the WSA. The WSA lacks outstanding opportunities for primitive nonmotorized recreation. Scenic quality would not be a significant special feature to wilderness designation, as there are many developed areas within view from the interior of the unit. This WSA would not add outstanding quality or diversity to the National Wilderness Preservation System.


Missouri Wild & Scenic River Corridor
Missouri
River
Holmes Rapids
Holmes Council Islands
Iron City Islands
Council Island
Ferry
PN Island
FERGUS CO
CHOUTEAU CO
BLAINE CO
Birch Creek Hill
Johnson Hill
Johns Coulee
Coal
Coulee
Wolf
Coulee
Gallatin Rapids
Judith
River
Whiskey
Dog
Creek
Jones Cone
Oil Well Hill
Spr
808
750
751
965
979
962
967
980
957
845
997
978
820
953
969
1012
760
989
954
925
988
991
995
1033
1023
1
6
1
6
31
36
36
31
1
6
1
36
31
36
31
T23N
T22N
R16E
R17E
R17E
R18E

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

Dog Creek South
Proposal


0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

MT-068-244
SEPTEMBER, 1990

BLM geologists have rated this WSA as having a high potential for natural gas reserves. Approximately 15 percent of the area is under post-FLPMA leases, and the rest is closed to further leasing because of the WSA status. The recommendation would allow for future exploration and development of this resource.

Table 1
Land Status and Acreage Summary of the Dog Creek South WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	5,150
Split Estate	0
Inholdings (state & private)	0
Total	5,150
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state & private)	0
Within the Area Not Recommended for Wilderness	
BLM	5,150
Split Estate	0
Total BLM Land Not Recommended for Wilderness	5,150
Inholdings (state & private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The majority of the area is natural. Most human features are scattered throughout the WSA and are well screened, except for one vehicle way along the northern boundary which is visible from the Upper Missouri National Wild & Scenic River and from ridgetops within the unit.

Solitude: The area contains some opportunities for outstanding solitude. The rugged river-breaks topography provides some isolated areas for the wilderness user.

The drainages in the northern and western sectors of the WSA converge on the PN Ranch near the mouth of Dog Creek. Extensive farming operations along the boundary are readily visible from the WSA; associated sounds can be heard in most areas as well.

Military craft are scheduled to fly over the WSA daily at 4,000 feet, so periodic disruptions of solitude occur.

Primitive and Unconfined Recreation: The WSA does not contain outstanding opportunities for primitive recreation. Hunting for big game is the most popular form of recreational activity. Overland access to the area is controlled by private landowners. Limited public access is available by watercraft from the Missouri River, along the northern boundary.

Special Features: The WSA displays striking vertical, heavily eroded topography, which is a notable attribute. Most slopes are composed of clay and soil layers, with shortgrass prairie communities present on the ridges.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural sytems as represented by ecosystems: The Dog Creek South WSA is in the Great Plains Shortgrass Prairie Ecoregion (3110). It is classified as a grama-wheatgrass-needlegrass ecotype (subgroup 057). Currently the National Wilderness Preservation System (NWPS) contains one representative of this ecotype. Thirteen other BLM WSAs of this ecotype are being studied for potential wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July 1988)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass type	1	20,892	0	0
	MONTANA			
	1	20,892	13	223,727

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The Dog Creek South WSA is within five hours' driving time of two major population centers in Montana - Great Falls and Billings (see Table 3). The need for additional wilderness opportunities for urban dwellers within a five-hour drive of this area is not a significant consideration in its suitability for wilderness designation.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Great Falls	18	8,674,000	11	156,000
Billings	11	4,559,000	12	216,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would add little to the geographic distribution of wilderness in the area. The four-state region of Wyoming, Montana, Idaho and North Dakota contains twenty-nine designated wilderness areas encompassing 9.3 million acres. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action. The designated wilderness areas are dispersed throughout western Montana, northern Wyoming and eastern Idaho. Most of the presidentially endorsed areas are in central Montana near the Dog Creek Study Area.

Manageability (the area must be capable of being effectively managed to protect its wilderness character):

The WSA is not manageable as wilderness. The privately owned lands immediately adjacent to a narrow corridor on the east side of the area create a manageability problem, because offsite sounds and sights from those tracts degrade solitude and naturalness. Periodic mechanized agricultural vehicle movements disrupt the wilderness values in that portion of the WSA.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of oil is rated low by BLM geologists. There is a high probability of finding natural gas in this WSA. Only 780 acres are under a post-FLPMA lease while the remaining 85 percent of the area is closed to leasing.

Coal is present in the area and has been mined nearby for personal use, but neither coal nor any other mineral exists in commercial quantities.

Impacts on Resources

The following comparative impact table summarizes the impacts for both alternatives considered - no wilderness and all wilderness.

Table 4
Comparative Summary of Impacts - Dog Creek South WSA

Issue	No Wilderness (Proposed Action)	All-Wilderness Alternative
Impacts on Wilderness Values	The naturalness of the area would be reduced on 15% of the WSA by gas well facilities in the southwest corner. Opportunities for solitude and for primitive and unconfined recreation would be reduced on 20% of the WSA by gas drilling activities.	The naturalness of 25% of the WSA would be enhanced by the revegetation of vehicle ways. Opportunities for solitude and for primitive and unconfined recreation would be enhanced by the elimination of recreational ORV use and by the reduction of mechanized-equipment use for range maintenance.

Impacts on Oil and Gas Development	There would be no impact on oil and gas development.	The opportunity to drill two gas wells would be forgone.
Impacts on Big Game Population Levels - Mule Deer	Mule deer population levels would not be affected. Displacement would occur temporarily while gas well	The mule deer population would increase slightly, from a range of 20 to 80 to a range of 22 to 88. development occurred.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock management or the maintenance of range projects.	Range development maintenance and the checking of livestock could continue, but the three permitees would incur additional costs of $275 and 75 hours of labor yearly.
Impacts on Recreational ORV Use	There would be no impacts on levels of recreational ORV use.	Recreational ORV use would decline from 150 RV days to zero.

Local Social and Economic Considerations

Wilderness designation would lower impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as reductions in animal unit months (AUMs) or policy modifications that prevent range improvement construction and maintenance, will be forthcoming under wilderness designation. Local ranchers are also concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If designation occurs, many ranchers feel their operations would become less viable. Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low, however.

The substitution of horse use or foot travel for routine vehicle use would increase expenses by approximately $130 and thirty-five additional hours of labor annually. The potential loss in loan value for long-term ranch loans could be as much as $20,144, depending on the lender. Two operators have grazing permits in this area. Since both currently use the vehicle ways, any increased expenses would be shared.

Revenues lost by the county from any oil or gas production forgone would not be significant based on present revenue generated in the surrounding areas and because of the small size of this WSA.

Summary of WSA-Specific Public Comments

A number of public comments were received during the inventory phase of the wilderness review for the Dog Creek South WSA. Some remarks were deferred to the study phase and were not considered in the selection of the area as a WSA. Those comments are as follows:

(1) cultivated fields and irrigation activities are evident on all sides of the WSA;
(2) the Leroy Gas Field is adjacent to the area;
(3) the Winifred School District might lose tax revenues if this area becomes wilderness.

Thirty-seven respondents commented on the Draft Missouri Breaks EIS and recommended that the WSA be designated wilderness but provided no rationale. Only one respondent stated that he concurred with the no-wilderness recommendation.

One federal agency commented on the Ervin Ridge WSA. The National Park Service suggested that, for areas recommended for nonwilderness in the Wild & Scenic River Corridor, additional protection should be considered in order to shield such lands from mineral development.

No state or local government entities submitted any WSA-specific comments.

The area will remain in multiple-use management, while the Upper Missouri Wild & Scenic River corridor designation will continue to protect resource values on 3,902 acres. No other special management to protect the natural values is recommended.

WOODHAWK WILDERNESS STUDY AREA

THE STUDY AREA - 8,100 acres

The Woodhawk Wilderness Study Area (MT-068-246) is adjacent to the Missouri River in Fergus County, Montana. The area is bounded on the north by Sunshine Spur Road and public lands; on the west by Woodhawk Trail Road and state and public lands; on the south by Lower Two Calf and DeMars roads; and on the east by the Missouri River and private lands. (See map.)

The WSA is 4 miles long and 2 to 4.5 miles wide, with distances from the center to the perimeter measuring about 1.5 to 2 miles. The unit is typical of the Missouri River Breaks' broken topography. South- facing slopes consist of bare, banded clay and soil layers supporting a shortgrass prairie environment. Juniper and ponderosa pine also are present, along with a few Douglas fir trees. Two major drainages flow west-east into the Missouri River, creating a deeply eroded landform.

The Woodhawk WSA is part of the Missouri Plateau where the Missouri River has cut a canyon 600-800 feet deep. Exposed rock in the breaks topography is largely sedimentary shales and sandstones.

The topography of the WSA was formed during the Pleistocene Period when the ice sheet covering the region melted. The Missouri River established a course south of the Bears Paw and Little Rocky Mountains, cutting deeply into the soft shales and sandstones of the area. This activity formed the numerous steep hills and deep coulees that are typical of the Missouri breaks topography.

The Woodhawk WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Missouri Breaks EIS filed with the EPA in December 1987. Two alternatives were developed for this WSA: a no-wilderness alternative, which is the recommendation in this report, and an all-wilderness alternative.

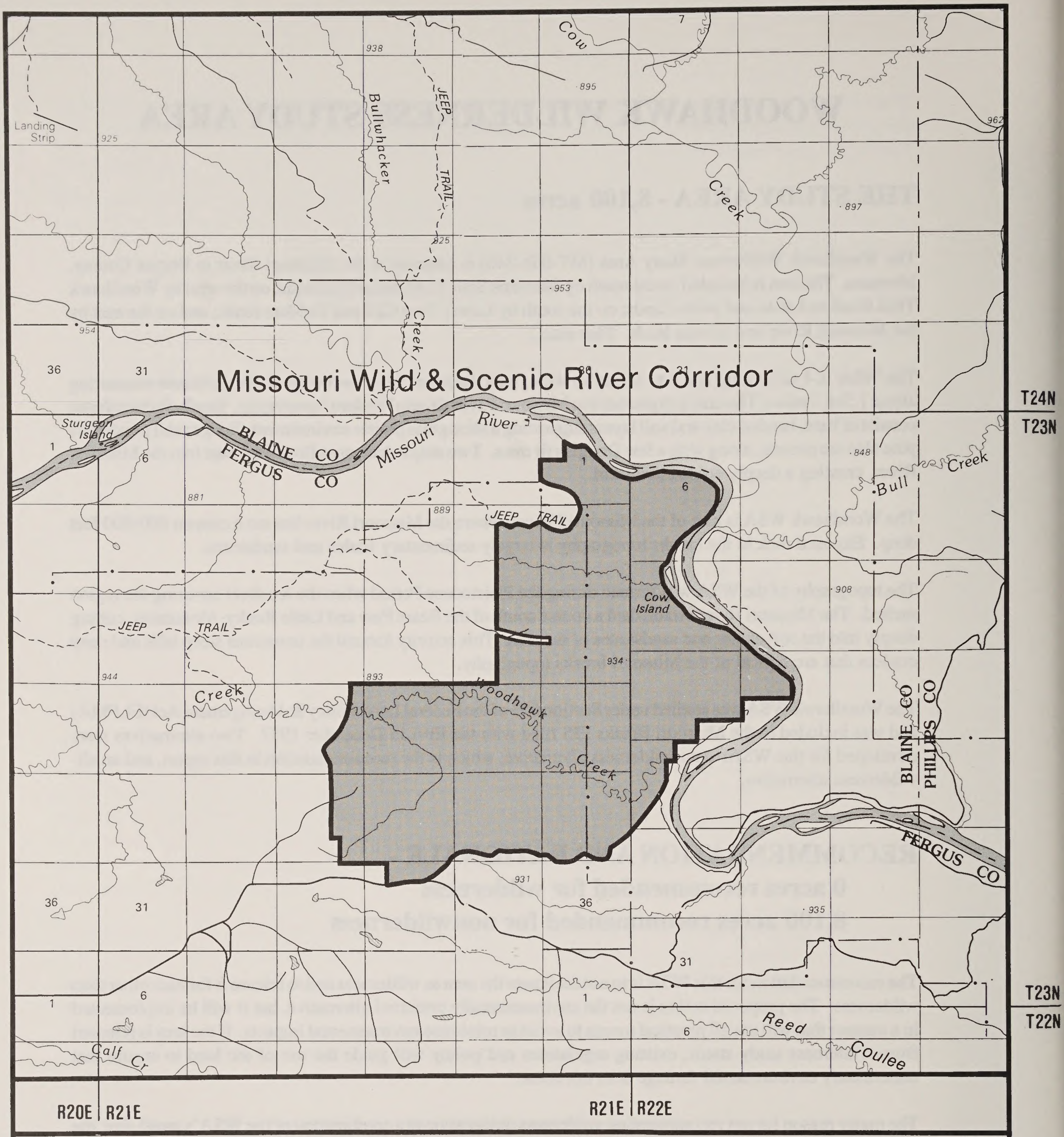
RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
8,100 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area as wilderness and to release it for uses other than wilderness. The proposed action is not the environmentally preferred alternative, but it will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts. If the area is released from wilderness study status, existing regulations and policy will guide the use of the land to ensure that unnecessary environmental damage does not occur.

The major reason for not recommending wilderness designation is a combination of the WSA's small size, the central location of a cherry-stemmed road, and several resource conflicts.

This WSA has been rated by BLM geologists as having a high potential for natural gas reserves. Approximately 1.5 percent of the WSA (120 acres) is under a post-FLPMA lease. Long-term conflicts with development of the minerals resource would be probable if this WSA were designated wilderness.

Eleven closely grouped reservoirs, many of them aging structures, will need maintenance or replacement in the near future. The long-term protection of wilderness values could limit new access ways and other surface disturbances necessary for project construction or relocation of these reservoirs.


Missouri Wild & Scenic River Corridor
Landing Strip
Bullwhacker Creek
JEEP TRAIL
Cow Creek
Missouri River
Sturgeon Island
BLAINE CO
FERGUS CO
Cow Island
Woodhawk Creek
Bull Creek
Creek
Reed Coulee
Calf Cr
BLAINE CO
PHILLIPS CO
938
895
925
962
897
825
953
954
848
881
889
908
934
944
893
931
935
36
31
1
6
T24N
T23N
T22N
R20E
R21E
R22E
7

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

Woodhawk Proposal

-N-
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-068-246
SEPTEMBER, 1990

Access to this WSA is primarily controlled by BLM. The access into the center of the unit via the cherry-stemmed DeWeese Ridge Road would be a major management problem: The road effectively cuts the unit in half and brings the likelihood of periodic vehicle traffic into the unit's core. Although this track is fairly well screened from view, its presence remains a visual impact. Vehicles using this road would cause periodic disruption of solitude values.

Approximately 43 percent of the WSA is located within the Upper Missouri Wild & Scenic River corridor; thus, under river management plan guidelines, the area will have continuing protection from environmental impacts.

Table 1
Land Status and Acreage Summary of the Woodhawk WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	8,100
Split Estate	0
Inholdings (state and private)	0
Total	8,100
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state and private)	0
Within the Area Not Recommended for Wilderness	
BLM	8,100
Split Estate	0
Total BLM Land Not Recommended for Wilderness	8,100
Inholdings (state and private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The area appears mostly natural, with the following exceptions: a concentration of reservoirs (in T.23 N., R.21 E., Sections 25, 26 and 27) adversely affects natural values in the southern third of the unit; the cherry-stemmed Deweese Ridge Road, which ends 1.5 miles inside the area's boundaries, detracts from naturalness in the center of the unit.

Other human imprints inside the unit are mostly associated with livestock grazing. Because these features are dispersed throughout the area, boundary modifications would not significantly increase this WSA's apparent naturalness.

Solitude: Areas that offer opportunities for outstanding solitude are available. Approximately 60 percent of the WSA has good to excellent screening vegetation, but south-facing slopes generally are bare. The central portion of the study area and the southwestern edge lack forest vegetation because of a recent fire. In portions of the unit, the topography itself provides good screening, thus creating opportunities for solitude.

The Deweese Ridge Road, in the center of the WSA, extends along a high, open ridge. It provides access to the central portion of the area, and is heavily used during hunting season. Both motorized and nonmotorized users would tend to congregate along this road, detracting from the wilderness quality. Farming operations to the south and north are visible and often audible, affecting the overall opportunity for solitude from the high ridges and hilltops.

Military aircraft are scheduled to fly daily over the WSA at 4,000 feet, causing periodic disruptions of solitude throughout the unit.

Primitive and Unconfined Recreation: This WSA does not contain outstanding primitive and unconfined recreational opportunities. Primitive recreational possibilities in the unit consist of rock climbing on the cliffs (in T.23 N., R.21 E., Sections 13 and 24), horseback riding on the ridges or main drainages, hiking, hunting and sightseeing. Recreationists presently use vehicles on Deweese Ridge Road or on Sunshine Spur Road (in T.23 N., R.21 E., Sections 1, 2, 11 and 12). These roads also are used for fire control. River floaters make some use of camping areas along the Missouri.

Although access is very good, rain or snow can quickly seal off the area, limiting the user season to the May-October period during dry weather conditions. Big game hunting quality is restricted by the difficulty of game retrieval and by fluctuating game populations. Rattlesnakes and the steep slopes pose hazards to the unwary visitor.

Special Features: The Woodhawk WSA is characterized by colorful, broken topography. Most south-facing slopes consist of open, banded clay and soil layers. The unit's two major drainages flow west-east into the Missouri River, leaving a deeply eroded landform in their wake. The best views of this spectacular scenery are from the access roads and the Deweese Ridge Road.

The study area contains several prehistoric occupation sites. In historic times, woodhawkers (the local term for woodcutters) cut timber in the area to fuel steamboats on the Missouri River (hence the name of this area), and Chief Joseph's Nez Perce Indians probably traversed the unit in their attempt to escape to Canada in 1877.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems as represented by ecosystems: The Woodhawk WSA is in the Great Plains Shortgrass Prairie Ecoregion (3110). It is classified as a grama-wheatgrass- needlegrass ecotype (subgroup-057). Currently the National Wilderness Preservation System (NWPS) contains one representative of this ecotype. Thirteen other BLM WSAs of this ecotype are being studied for potential wilderness designation.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass Type	1	20,892	0	0
MONTANA				
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass Type	1	20,892	13	220,777

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of two major population centers in Montana - Great Falls and Billings. The need for additional wilderness opportunities for urban dwellers within a five-hour drive of this area is not a significant consideration in its suitability for wilderness designation.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Great Falls	18	8,674,000	11	156 ,000
Billings	11	4,559,000	12	216 ,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would add little to the geographic distribution of wilderness in the area. The four-state region of Wyoming, Montana, Idaho and North Dakota contains twenty-nine designated wilderness areas encompassing 9.3 million acres. The Missouri River Breaks area presently has one designated wilderness (UL Bend) and fifteen study areas administered by the U.S. Fish & Wildlife Service that have been administratively endorsed for wilderness and are awaiting congressional action. The designated wilderness areas are dispersed throughout western Montana, northern Wyoming and eastern Idaho. Most of the presidentially endorsed areas are in central Montana near the Woodhawk Study Area.

Manageability (the area must be capable of being effectively managed to protect its wilderness character):

The area is manageable as wilderness but wilderness quality would be impacted by the cherry-stemmed road (DeWeese Ridge) that penetrates to the center of the unit and by off-site sounds and sights from nearby farming and ranching activities.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of oil is rated low by BLM geologists; the probability of finding natural gas is rated high. Approximately 1.5 percent of the acreage in this unit (120 acres) is under post-FLPMA oil and gas leases.

The rough topography and relatively small size of this unit make it unlikely that post-FLPMA leases could be developed without damaging wilderness values. With nearly 99 percent of the acreage in the unit included in nonlease status, the potential exists for a major loss of opportunity to explore for natural gas.

Impacts on Resources

The following comparative impact table summarizes the impacts for both alternatives considered - no wilderness and all wilderness.

Table 4
Comparative Summary of Impacts - Woodhawk WSA

Issues	**No Wilderness (Proposed Action)**	**All-Wilderness Alternative**
Impacts on Wilderness Values	Gas development would reduce naturalness in the southwest portion (20% of the WSA). Opportunities for solitude and primitive and unconfined recreation would be reduced on about 25% of the WSA.	The revegetation of vehicle ways would improve naturalness on 10% of the area. Opportunities for solitude and for primitive/unconfined recreation would improve on 15% of the WSA.
Impacts on Oil and Gas Development	There would be no impact on oil and gas development levels.	The opportunity to drill up to four gas wells would be forgone.
Impacts on Big Game Population Levels - Mule Deer	Mule deer population levels would not be impacted. Displacement would occur temporarily while gas well development occurred.	Mule deer population levels would increase slightly, from a range of 30 to 150 to a range of 35 to 165.
Impacts on Livestock Management and Existing Range Project Maintenance Levels	There would be no impact on livestock checking or range development maintenance levels.	Range development maintenance and the checking of livestock could continue, but 2 permittees would incur added yearly costs of $85 and 20 hrs.
Impacts on Recreational ORV Use	There would be no impact on levels of recreational ORV use.	Recreational ORV use would decline from 400 to zero.

Local Social and Economic Considerations

Wilderness designation would limit impacted ranchers' expectations of being able to remain in the ranching business. Most operators believe that drastic changes, such as cuts in animal unit months (AUMs) or policy modifications that prevent range improvement construction and maintenance, would be forthcoming under wilderness designation. Ranchers also are concerned about the changes in ranch loan and sale values that could occur as a result of wilderness designation. If designation occurs, many ranchers feel their operation would become less viable. Actual out-of-pocket costs if the area were designated wilderness have been estimated to be low, however.

The substitution of horse use for casual vehicle use would result in potential increased expenses of approximately $85 and 20 hours of labor annually. Potential loss in loan value for long-term ranch loans could be as much as $88,130, depending on the lender. Two operators have permits in this area. The major operator has 90 percent of the AUMs in the WSA and would incur most of the increased expenses and reduced loan value.

Revenues lost by the county from any oil or gas production forgone because of wilderness designation would not be significant based on present revenue generated in the surrounding areas.

Summary of WSA-Specific Public Comments

Three respondents recommended that Woodhawk be designated wilderness but provided no rationale. Thirty-four respondents favored the "conservationist alternative" that supported wilderness designation for Woodhawk and other Missouri River-area WSAs but gave no specific rationale.

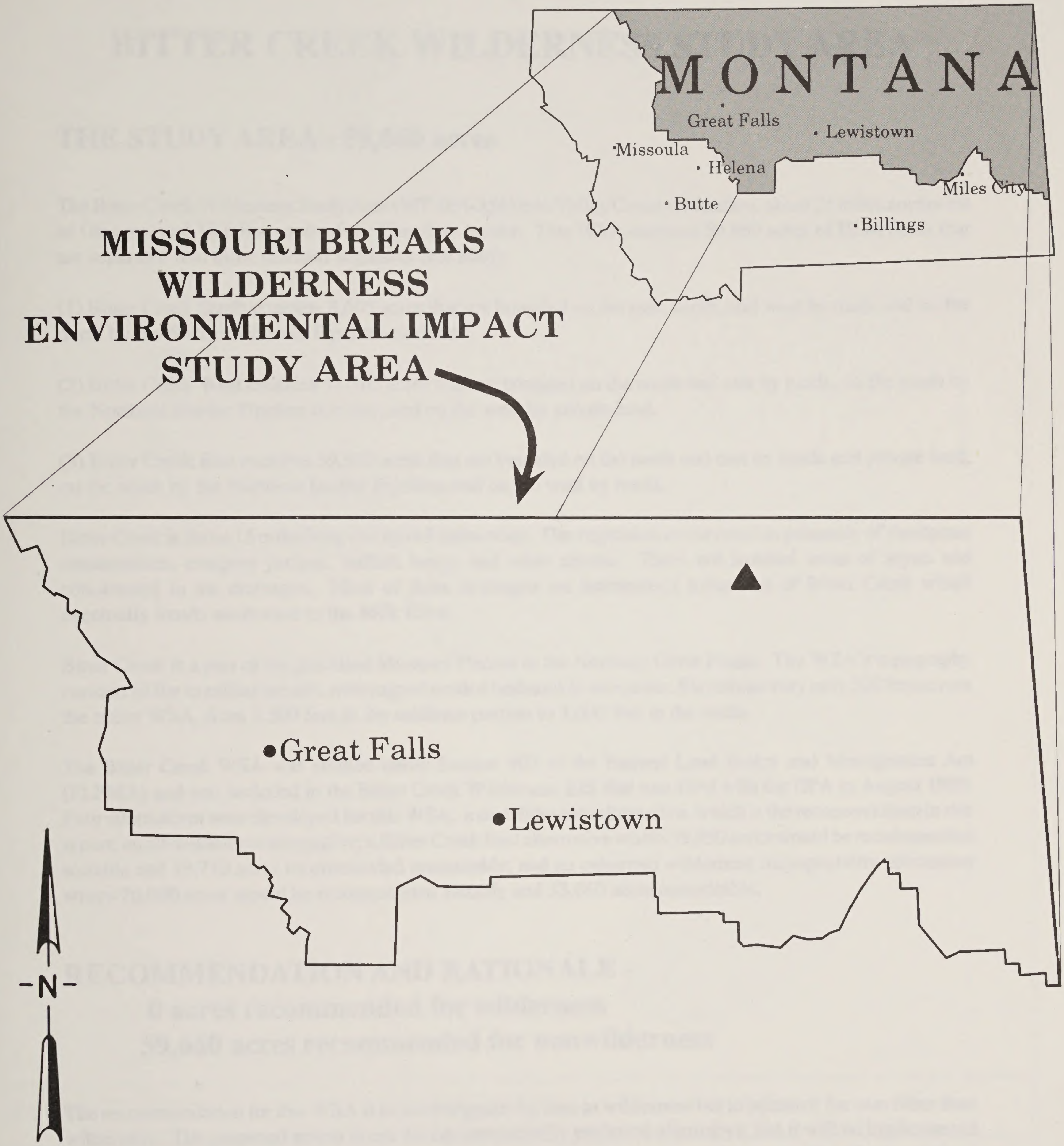
Four specific comments regarding only the Woodhawk WSA were received. All four noted that the WSA is within a portion of the Upper Missouri Wild & Scenic River corridor that provides access, recreational opportunities and resource protection. The four also stated that potential mineral conflicts were not proper criteria for making a nonwilderness recommendation, and that the area was outstanding in terms of solitude opportunities and scenic values. Three of the four respondents stated that the impacts of designation on grazing were minimal and felt that conflicts could be easily worked out with the permittee to allow his continued use of the area and maintenance of range facilities.

Two respondents concurred with BLM's preferred alternative. One respondent stated that the area is bisected by roads and does not meet wilderness criteria because human imprints are visible from nearly every vantage. Another respondent felt that oil and gas development would be curtailed by wilderness designation and that grazing privileges would ultimately be cut or eliminated. Both respondents claimed that the cherry-stemmed road into the center of the WSA was not a valid conflict with wilderness.

Twenty additional respondents preferred nonwilderness for the general area. Eight additional respondents stated that they supported the preferred alternative of no wilderness.

Summary Analysis

Bitter Creek Wilderness EIS


MONTANA
Great Falls
Lewistown
Missoula
Helena
Miles City
Butte
Billings
MISSOURI BREAKS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA
Great Falls
Lewistown
N

BITTER CREEK WILDERNESS STUDY AREA

BITTER CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 59,660 acres

The Bitter Creek Wilderness Study Area (MT-064-356) is in Valley County, Montana, about 25 miles northwest of Glasgow and 18 miles south of the Canadian border. This WSA contains 59,660 acres of BLM lands that are separated into three roadless segments (see map):

(1) Bitter Creek South contains 8,605 acres that are bounded on the east, south, and west by roads and on the north by the Northern Border Pipeline corridor.

(2) Bitter Creek West contains 11,105 acres that are bounded on the north and east by roads, on the south by the Northern Border Pipeline corridor, and on the west by private land.

(3) Bitter Creek East contains 39,950 acres that are bounded on the north and east by roads and private land, on the south by the Northern Border Pipeline, and on the west by roads.

Bitter Creek is about 15 miles long and up to 8 miles wide. The vegetative cover consists primarily of shortgrass communities, creeping juniper, buffalo berry, and other shrubs. There are isolated areas of aspen and cottonwood in the drainages. Most of these drainages are intermittent tributaries of Bitter Creek which eventually trends southward to the Milk River.

Bitter Creek is a part of the glaciated Missouri Plateau in the Northern Great Plains. The WSA's topography consists of flat to rolling terrain, with rugged eroded badlands in the center. Elevations vary only 500 feet across the entire WSA, from 2,500 feet in the southern portion to 3,000 feet in the north.

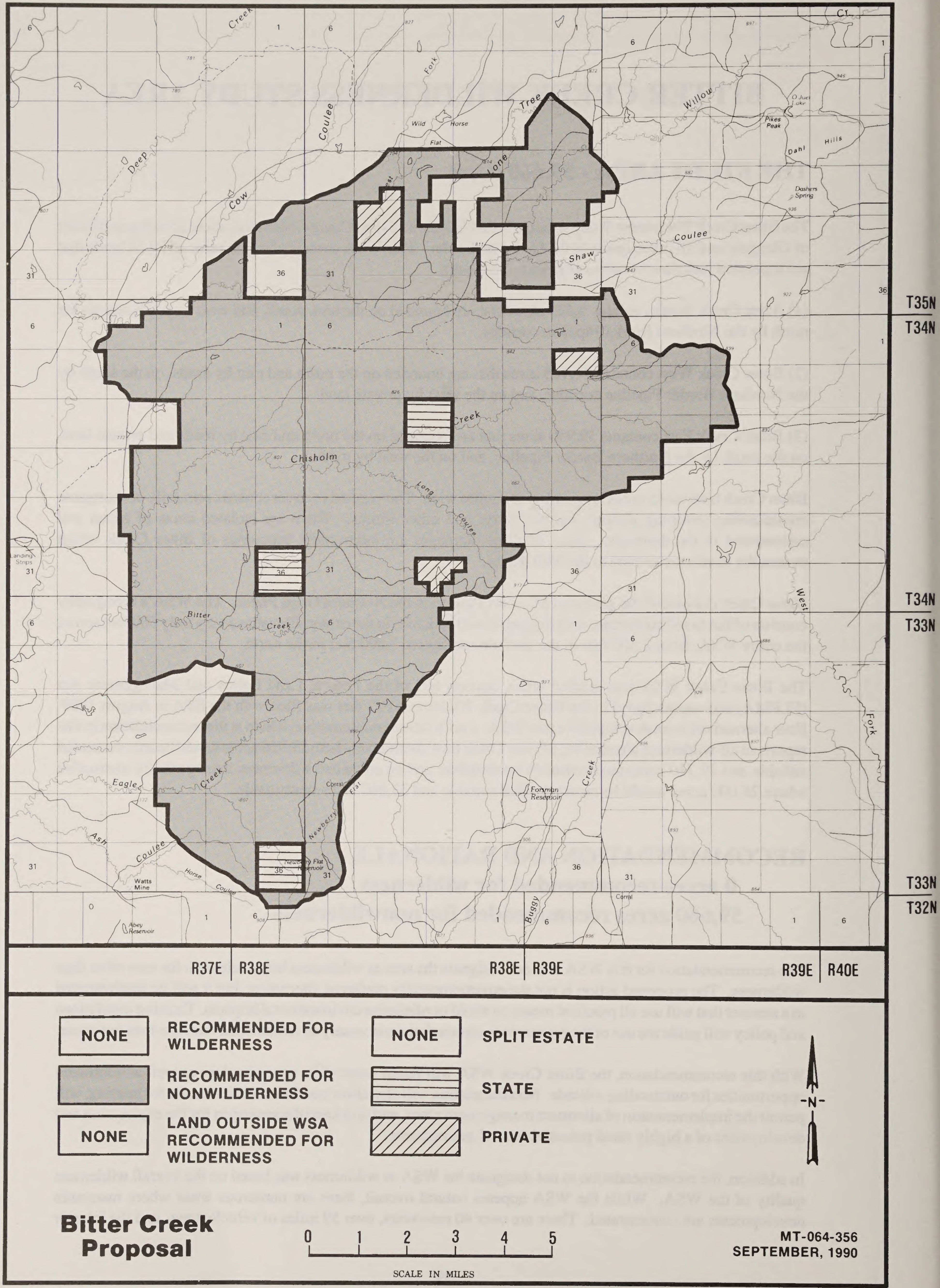
The Bitter Creek WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the Bitter Creek Wilderness EIS that was filed with the EPA in August 1989. Four alternatives were developed for this WSA: a no-wilderness alternative, which is the recomendation in this report; an all-wilderness alternative; a Bitter Creek East alternative where 39,950 acres would be recommended suitable and 19,710 acres recommended nonsuitable; and an enhanced wilderness manageability alternative where 26,000 acres would be recommended suitable and 33,660 acres nonsuitable.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
59,660 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area as wilderness but to release it for uses other than wilderness. The proposed action is not the environmentally preferred alternative, but it will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts. Existing regulations and policy will guide the use of the resources to ensure that unnecessary environmental damage does not occur.

With this recommendation, the Bitter Creek WSA will retain some of its natural values as well as continued opportunities for outstanding solitude. Nondesignation will also allow continued vehicular use for hunting, will permit the implementation of allotment management plans, and will keep the area open for the exploration and development of a highly rated potential natural gas resource.

In addition, the recommendation to not designate the WSA as wilderness was based on the overall wilderness quality of the WSA. While the WSA appears natural overall, there are numerous areas where manmade developments are concentrated. There are over 40 reservoirs, over 59 miles of vehicle ways, and the interior


Deep
Cow
Coulee
Creek
Fork
Wild
Horse
Flat
Tree
Lone
West
Willow
O Juel Lake
Pikes Peak
Dahl
Hills
Dashers Spring
Coulee
Shaw
Creek
Chisholm
Long
Coulee
Landing Strips
Bitter
Creek
West
Fork
Eagle
Creek
Corral
Flat
Newberry
Forsman Reservoir
Creek
Ash
Coulee
Horse
Coulee
Newberry Flat Reservoir
Watts Mine
Abey Reservoir
Buggy
Corral
T35N
T34N
T33N
T32N
R37E
R38E
R39E
R40E
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
PRIVATE
N
0
1
2
3
4
5
SCALE IN MILES

Bitter Creek Proposal

MT-064-356
SEPTEMBER, 1990

road segments that divide the large WSA into 3 smaller roadless units. The WSA was not rated to have outstanding opportunities for primitive recreation. Most of the use of the WSA is associated with vehicle based hunting, fishing, and wildlife viewing. The WSA does contain numerous areas where outstanding solitude is available, but the internal roads periodically receive use, primarily by recreationists, and this use reduces the overall quality of solitude in the WSA.

The WSA would be difficult to manage as wilderness in the long term. This study area contains 1,360 acres of private land and 1,920 acres of state land in three tracts, all of which could require vehicle access. There is a lack of topographic barriers to obscure vehicular use that occurs on private lands bordering the area. Two interior roads divide the WSA into three separate roadless segments. Throughout the study process, there has been overwhelming opposition to wilderness designation by area residents. This opposition was considered in the recommendation for this WSA.

Table 1
Land Status and Acreage Summary of the Bitter Creek WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	59,660
Split Estate	0
Inholdings (state and private)	3,280
Total	62,940
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state and private)	0
Within the Area Not Recommended for Wilderness	
BLM	59,660
Split Estate	0
Total BLM Land Not Recommended for Wilderness	59,660
Inholdings (state and private)	3,280

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The Bitter Creek WSA appears natural. The majority of human imprints are range improvement projects and vehicle ways. The projects, which are scattered throughout the WSA, are generally screened by the topography and vegetation or have been reclaimed. The WSA contains a total of forty-four reservoirs, ten waterfowl nesting islands, twelve fences (62 miles), one water pipeline (2 miles) with two associated water tanks, one holding corral, one spring develop-ment, and seven vehicle ways (59 miles). An interior road system of 14 miles that receives annual maintenance divides the WSA into three roadless segments (Bitter Creek South, Bitter Creek West, and Bitter Creek East).

Solitude: The Bitter Creek WSA contains marginal opportunities for solitude. The majority of the WSA (60 percent) is bounded by an exterior road system that produces numerous offsite sights and sounds. Any human activities inside or near the WSA would detract from the solitude opportunities due to the lack of screening available. The exception is the core area of the Bitter Creek East roadless segment. The sheer size of this section (39,950 acres) allows a number of visitors to use the area at the same time without an undue effect on outstanding solitude values.

Primitive and Unconfined Recreation: The WSA does not offer outstanding opportunities for primitive and unconfined recreation. Possible activities include hunting, wildlife viewing, photography, fishing, hiking, and sightseeing. None of these would represent a challenging or exceptional recreational opportunity, however.

Special Features: There are no special features within the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems as represented by ecosystems: The Bitter Creek WSA is in the Great Plains Shortgrass Prairie Ecoregion (3110). It is classified as grama-wheatgrass-needlegrass ecotype (subgroup-057). The National Wilderness Preservation System (NWPS) contains one representative of this ecotype: A 20,892-acre area managed by the U.S. Fish and Wildlife Service on the C.M. Russell National Wildlife Refuge (UL Bend) is presently the only representative of the shortgrass prairie ecotype subgroup 057 in the National Wilderness Preservation System (NWPS). Thirteen other BLM WSAs of this ecotype are being studied for possible wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass Type	0 1	0 20,892	0	0
	MONTANA			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Grama, Needlegrass, Wheatgrass Type	1	20,892	13	169, 765

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: There are no major population centers within five hours' driving time (250 miles) of Bitter Creek. The three closet urban areas are Billings and Great Falls (Montana), both about six hours away, and the Bismarck/Mandan (North Dakota) area, about eight hours away.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
None	0	0	0	0

Balancing the geographic distribution of wilderness areas: Designating Bitter Creek as wilderness would add little to the geographic distribution of the NWPS. In the four-state region of Montana, Idaho, Wyoming, and North Dakota, 9.3 million acres in twenty-nine areas have been designated wilderness. The central Montana area has one designated wilderness unit (UL Bend) that represents subgroup 057, and fifteen other study areas in that subgroup that have been administratively endorsed as wilderness and are awaiting congressional action.

Manageability (the area must be capable of being effectively managed to protect its wilderness character):

The Bitter Creek WSA is manageable as wilderness only under the enhanced wilderness manageability alternative (39,950 acres). Under the all-wilderness and Bitter Creek East alternatives, two issues would make wilderness management impractical. These are the number of state and private inholdings (access would be required to six separate tracts totaling 3,280 acres), and the lack of topographic barriers to prevent or screen vehicle use on adjacent private lands and on two interior roads. If the unit were designated, management conflicts would be reduced if the inholdings could be acquired.

Other concerns are the presence of post-FLPMA oil and gas leases, the high probability of finding natural gas, and the local resistance to wilderness. These issues in combination make the area potentially unmanageable as wilderness.

Energy and Mineral Resource Values

The potential for discovering economically recoverable amounts of natural gas in this WSA is rated high by BLM geologists. Approximately 11 percent of the public land is under post-FLPMA leases for natural gas exploration. Currently no natural gas production is occurring within the boundaries of the WSA. The unit holds no potential for oil discovery.

There is no known mineral production in the WSA. The potential for bentonite deposits is moderate but no deposits have been identified. Sand and gravel, uranium, and geothermal energy resources are rated with a low potential for occurrence.

Impacts on Resources

The following comparative impact table summarizes the impacts for the four alternatives considered - no wilderness, all wilderness, Bitter Creek East, and enhanced wilderness manageability.

Table 4
Comparative Summary of Impacts - Bitter Creek WSA

Issues	No-Wilderness Alternative (Proposed Action)	All-Wilderness Alternative	Bitter Creek East Alternative	Enhanced Wilderness Alternative
Impacts on Wilderness Values	Naturalness of 20 percent of the WSA would be reduced by chiseling projects, reservoir construction, and fencing. Opportunities for solitude would be reduced on 40% of the WSA by natural gas development (75 wells) and use of the internal road system.	Naturalness of 10 percent of the WSA would be reduced by reservoir construction and maintenance on existing RI projects. Opportunities for solitude and primitive/unconfined recreation would decrease on 20% by use of the internal road system.	Naturalness and opportunities for solitude would be reduced on 5 percent of the suitable portion by use of boundary roads. Such values would be reduced on 30 percent of nonsuitable portion due to natural gas well drilling activities (25 wells).	For the 26,000 acre roadless area, naturalness and opportunities for solitude would be enhanced. These values would be reduced on 25% of the nonsuitable portion due to drilling of 35 gas wells and use of ORVs.
Impacts on cess for Elderly and Disabled	There would be no impact on access for disabled and elderly.	Access for disabled and elderly would decline from 100% to 0.	Access for disabled and elderly would decline by 60%.	Access for dis-Ac- abled and elderly would decline by 40%.
Impacts on Access Levels for all Recreational Interests	There would be no impacts on access for all recreational interests.	Access levels would decline by 56% for hunters and by 14% for other recreational interests.	Access levels would decline by 50% for hunters and by 14% for other recreational interests.	Access levels would decline by 40% for hunters and by 14% for others.
Impacts on Big Game Population Levels - Mule Deer	There would be no impact on mule deer population levels. Temporary displacement would occur during natural gas well development.	Mule deer populations would would rise from a range of 8-10 per square mile to 11-13 per square mile.	Same as under all-wilderness alternative.	Mule deer populations would increase from a range of 8-10 per square mile to 9-11 per square mile.
Impacts on Coyote Populations	There would be no impact on coyote populations.	There would be no significant change in coyote populations.	Same as under all-wilderness alternative.	Same as under all-wilderness alternative.

Impacts on Range Improvement Projects	There would be no impact on range improvement projects.	Maintenance on RI projects could continue but six permittees would incur added costs of $530 and 640 hours of labor annually. Three reservoirs would be built but the 2,310-acre chiseling project would not be done.	Maintenance on RI projects could continue but 6 permittees would incur added costs of $450 and 460 hours annually. The chiseling project on 1310 acres and construction of 3 reservoirs would be done. No chiseling would be allowed on 1,000 acres.	Maintenance on RI projects could continue but 6 permittes would incur added costs of $360 and 260 hours annually. The chiseling project on 2310 acres and construction of 3 reservoirs would be allowed.
Impacts on Amount of Noxious Plant Acreage	There would be no impact on the amount of noxious plant acreage.	Continued treatment would maintain infestation at two-acre size.	Same as under all-wilderness alternative.	Same as under all-wilderness alternative.
Impacts on Natural Gas Development	75 gas wells would be drilled. No impact on gas development levels.	No gas wells would be drilled. The opportunity to drill 75 wells would be forgone.	25 gas wells would be drilled. The opportunity to drill 50 wells would be lost.	35 gas wells would be drilled. The opportunity to drill 40 wells would be lost.
Impacts on Development of Other Minerals	The exploration for and development of sand, gravel, and bentonite would be allowed: no impact.	The exploration for and development of other minerals would be prohibited.	No exploration or development on 39,950 acres; permissible on remaining 19,710 acres.	No exploration or development on 26,000 acres but permissible on remaining 33,660 acres.

Local Social and Economic Considerations

Local attitudes toward wilderness designation for Bitter Creek are extremely negative. Most ranch operators believe that drastic changes, such as cuts in animal unit months (AUMs) or policy modifications that prevent range improvement projects and maintenance, would be forthcoming under wilderness designation. Many ranchers feel their operations will become less viable due to changes in ranch loan and sales values resulting from widerness designation. Six ranch operations (less than 1% of the total in Valley County) are permittees within the WSA, and there would be no measurable overall change in the basic social structure of the area. Cooperative relations between the ranching community and BLM could be strained, however, because of the prejudice against wilderness designation.

Actual out-of-pocket costs for ranchers have been estimated to be low if the area were designated wilderness. Increased expenses for the six permittees would include operational costs of $530 and 640 hours of labor annually. A decrease of 373 AUMs could cause livestock sale losses of $6,900 yearly.

The reduction in hunting activities from motorized equipment if the WSA were designated wilderness would decrease regional hunting expenditures by up to $4,250 annually, which is less than 1 percent of the total hunting dollars spent in the area. The nonhunting expenditures by those visiting the wilderness area would increase by approximately $600 yearly. The Glasgow area regional economy would not be significantly affected.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. During the inventory phase approximately 50 letters, a petition with 102 signatures, and 1,400 form letters were received. Fewer than ten letters supported studying the Bitter Creek area for wilderness designation. The petition and all form letters were against wilderness designation. Little interest from people outside the area was evident from public comments.

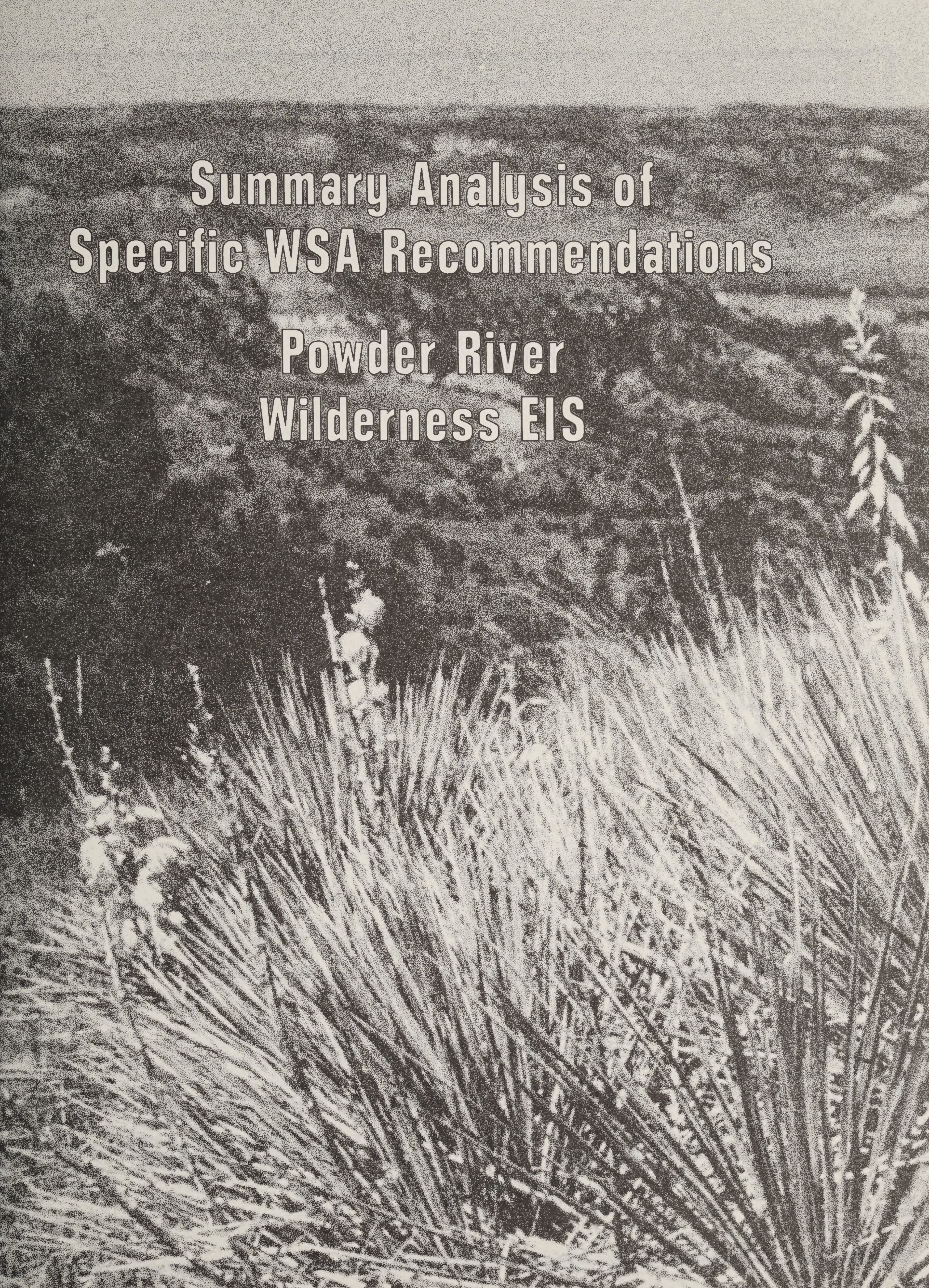
During the scoping phase of the Draft Bitter Creek Wilderness EIS, input was provided by individual letters, comments solicited at open houses, and a petition. Of the forty-five letters received, forty opposed designation. A total of ninety-seven comments was recorded at the open houses; of these, four supported designation and ninety-three opposed it. Approximately 400 people (99% from the Glasgow area) signed a petition against wilderness designation.

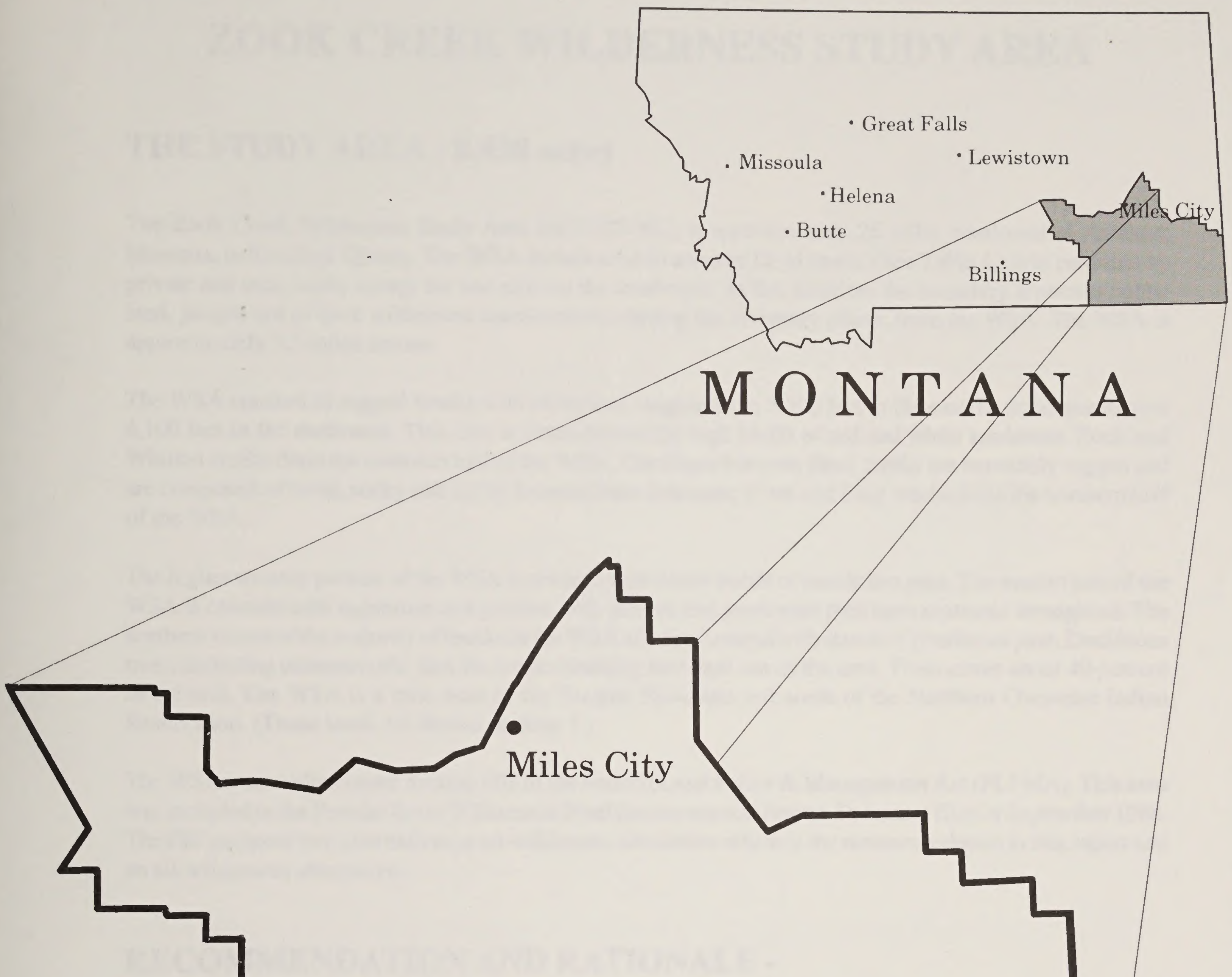
Public hearings were held in Glasgow and Helena. During the public hearings and comment period, a total of 406 comments both written and oral was received. Approximately 85 percent of these comments (345) favored nonwilderness. Individuals who provided specific input believed that the area was not threatened by development and that present uses were the best management alternative. Approximately 6 percent (27) supported some level of wilderness protection. The most common statement from these individuals was that prairie lands were not properly represented in the national wilderness system and that, by not designating Bitter Creek, one of the last opportunities to preserve prairie as wilderness would be lost. Thirty-two people (9%) remained neutral and took no position.

Three federal, one state, and one local government agency commented on this WSA. The Environmental Protection Agency, the Public Health Service, the National Park Service, and the State Historical Society took no position on wilderness designation. The local Valley County commissioners supported the non-wilderness proposal.

Summary Analysis of Specific WSA Recommendations

Powder River Wilderness EIS





Great Falls
Missoula
Lewistown
Helena
Miles City
Butte
Billings
MONTANA
Miles City
N

POWDER RIVER WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

ZOOK CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 8,438 acres

The Zook Creek Wilderness Study Area (MT-027-701) is approximately 26 miles southwest of Ashland, Montana, in Rosebud County. The WSA includes 8,440 acres of BLM lands. (See Table 1.) It is bordered by private and state lands, except for one mile on the southwest. At that location, the boundary separates public land, judged not to have wilderness characteristics during the inventory phase, from the WSA. The WSA is approximately 3.5 miles square.

The WSA consists of rugged breaks with elevations ranging from 3,200 feet in the eastern drainages to over 4,100 feet in the northwest. This area is characterized by high bluffs of red and white sandstone. Zook and Whitten creeks drain the southern half of the WSA. The ridges between these creeks are extremely rugged and are composed of loose, rocky soil cut by frequent side drainages. Cook and Coal creeks drain the northern half of the WSA.

The higher western portion of the WSA is covered with dense stands of ponderosa pine. The eastern part of the WSA is covered with sagebrush and grasses, with juniper and ponderosa pine trees scattered throughout. The northern slopes of the majority of breaks in the WSA are also covered with stands of ponderosa pine. Deciduous trees, including cottonwoods, line the creeks draining eastward out of the area. Trees cover about 40 percent of the unit. The WSA is a mile west of the Tongue River and just south of the Northern Cheyenne Indian Reservation. (These lands are shown on Map 1.)

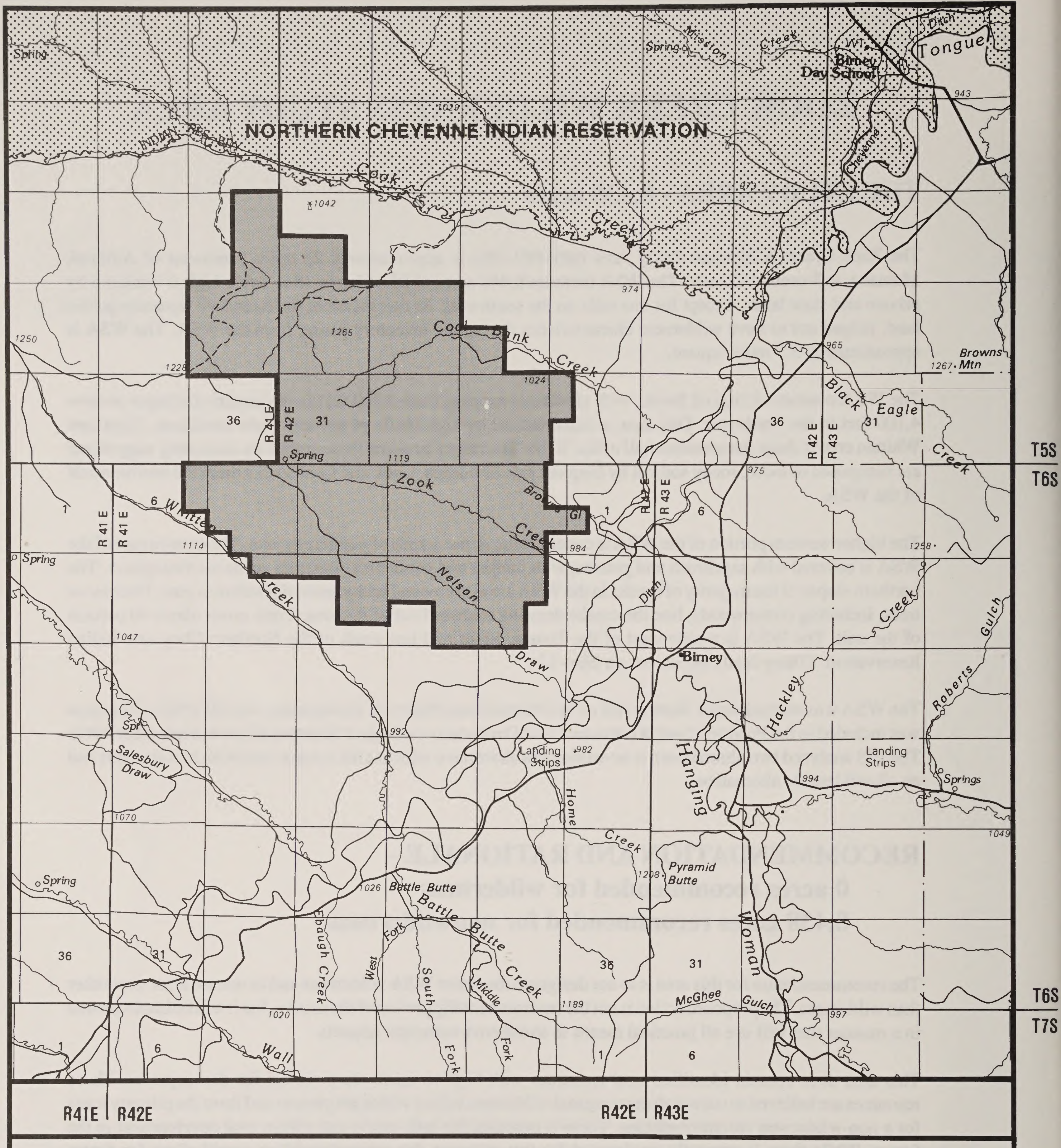
The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA). This area was included in the Powder River Wilderness Final Environmental Impact Statement filed in September 1988. The EIS analyzed two alternatives: a no-wilderness alternative which is the recommendation in this report and an all-wilderness alternative.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
8,438 acres recommended for nonwilderness

The recommendation for this area is to not designate the entire WSA wilderness and to release it for uses other than wilderness. The proposed action is not the environmentally preferred alternative, but it will be implemented in a manner that will use all practical means to avoid environmental impacts.

This area does contain identified coal resources with high to moderate potential for development. These resources are believed to outweigh the marginal wilderness values which are present and form the primary basis for a non-wilderness recommendation. There is potential for both onsite and offsite coal development in the future. While there is presently no demand for this resource, the recommendation would allow for future exploration and development if a need arises.

Man made developments in the WSA are fairly numerous, but their effect on naturalness is limited to site specific impacts because of topographic and vegetative screening. Furthermore, they are distributed around the periphery. The opportunities for solitude are outstanding only in isolated pockets in the upper drainages, most of which are timbered. The lower (easternmost) portions of the drainages generally are mildly undulating areas that do not provide outstanding opportunities for solitude.


NORTHERN CHEYENNE INDIAN RESERVATION
INDIAN RES. BDY
Spring
Mission Creek
Birney Day School
Tongue
Ditch
Cheyenne
943
1039
973
1042
Cook Creek
974
Coal Bank Creek
1265
1250
1228
1024
965
Browns Mtn
1267
Black Eagle Creek
36
31
R 41 E
R 42 E
R 43 E
Spring
1119
975
Zook Creek
Browns Gl
T5S
T6S
1
6
Whitten Creek
1114
984
1258
Nelson Draw
Ditch
Creek
Gulch
1047
Birney
Roberts
Hackley
Spr
Salesbury Draw
992
Landing Strips
982
Hanging Woman
Landing Strips
994
Springs
1070
Home Creek
1049
Pyramid Butte
1208
Spring
1026
Battle Butte
Battle Butte Creek
Ebaugh Creek
West Fork
South Fork
Middle Fork
36
31
36
31
T6S
T7S
1020
1189
McGhee Gulch
997
Wall
1
6
1
6
R41E
R42E
R42E
R43E

NONE — RECOMMENDED FOR WILDERNESS

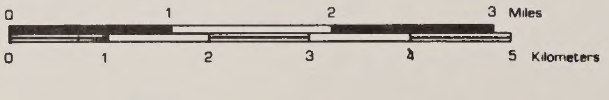
▨ — RECOMMENDED FOR NONWILDERNESS

NONE — LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS

NONE — SPLIT ESTATE

NONE — STATE

NONE — PRIVATE


0
1
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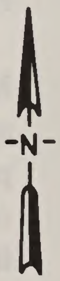


Zook Creek Proposal

MT-027-701
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary
of the Zook Creek WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	8,438
Split Estate	0
Inholdings (state and private)	0
Total	8,438
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state & private)	0
Within the Area Not Recommended for Wilderness	
BLM	8,438
Split Estate	0
Total BLM Land Not Recommended for Wilderness	8,438
Inholdings (state & private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: Most of the Zook Creek WSA appears natural. Several minor developments are located along the edges of the WSA and are screened by vegetation and topography. There are three miles of vehicle ways in the WSA. A faint vehicle way enters the WSA in T.6 S., R.42 E., Section 2, and ends at a windmill. There is a vehicle way in Sections 4 and 5 of T.6 S., R.42 E. Another vehicle way in T.5 S., R.42 E., Section 28, goes to a well in Section 29.

Other developments include four small reservoirs, three developed springs, and two wells, plus seven miles of fence. The imprints of humans, however, as perceived by the average visitor, are negligible. The highest elevation (4,151') is in the northwest and the lowest averages about 3,200 feet on the lower portions of drainages along the eastern border.

Solitude: Zook Creek WSA meets the minimum requirements for outstanding opportunities for solitude. The extremely rugged terrain of the breaks provides significant topographic screening. The stands of ponderosa pine furnish vegetative cover and screening in much of the WSA. Several creeks with 400-to 500-foot divides would separate visitors from each other without tending to funnel them into the same part of the area. The east and west side Tongue River roads are visible from the WSA. Also, ranch facilities exist and activities occur adjacent to the unit. Some of these facilities and movements can be seen from ridges in the WSA while looking east or north; however, their magnitude is not significant.

Primitive and Unconfined Recreation: This WSA meets minimum requirements for outstanding opportunities for primitive recreation, due to excellent hiking and backpacking potential. The rough terrain, scenery and trees all contribute to opportunities for backpacking and related activities such as sightseeing and photography. Snowshoeing and cross-country skiing could be enjoyed in Zook Creek WSA. Hunting, especially for mule deer, presently occurs.

Special Features: The vistas present in this area provide scenic values. From the tops of ridges, one can see the Tongue River Valley and rugged breaks along it. To the south, the Bighorn Mountains of Wyoming stand out on the horizon.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Great Plains Shortgrass Prairie Province/Eastern Ponderosa Forest 3110/15. There are no representatives in the National Wilderness Preservation System (NWPS) and only two other BLM WSAs of this ecotype. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province/Grama Needlegrass, Wheatgrass type	0	0	0	0
MONTANA				
	0	0	2	12,520

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		**Other BLM Studies**	
Population Centers	**areas**	**acres**	**areas**	**acres**
Dry Domain/				
Billings, Montana	13		4,819,000	76
755,000				
Casper, Wyoming	0		0	0 0

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in twenty-nine areas are designated wilderness. However, the nearest wilderness area to the WSA in Montana is the Absaroka-Beartooth. It contains approximately 920,000 acres and is located about 200 miles to the west.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The Zook Creek WSA is manageable as wilderness. There are no valid existing rights or ownership conflicts that could impact long-term wilderness management. ORV use could easily be administered due to the confining effects of the rough topography and timbered areas. Pre-FLPMA oil and gas leases are unlikely to be developed before they expire. As a worst case, however, coal could be developed offsite just across the Tongue River, which is a potential concern in maintaining solitude.

Energy and Mineral Resource Values

Coal is the primary mineral resource in the Zook Creek WSA according to BLM geologists. A total of 464 million tons of coal with high and moderate development potential has been identified, all within the Tongue River Member of the Fort Union Formation. Three coal beds with major reserves occur. From top to bottom, they are the Canyon, Wall and Brewster-Arnold beds. There are several additional coal-bearing zones with insignificant reserves at strippable depths. There are no coal leases or exploration licenses in the Zook Creek WSA.

There are 5,831 acres of pre-FLPMA and 1,971 acres of post-FLPMA oil and gas leases in Zook Creek. There are no oil or gas fields in or within 30 miles of the WSA.

The WSA is considered to have a low potential for geothermal resources. There are no known locatable minerals and no mining claims. Known saleable minerals are clinker, sand and gravel. Clinker produced by the burning of the Anderson-Dietz coal bed forms the plateau covering the highest elevations; smaller clinker areas mark the outcrops of lower coal zones. Clinker covers approximately 1,500 to 2,000 acres in the WSA. Insignificant deposits of sand and gravel occur along the floors of the major drainages.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered in the PFEIS.

Table 4
Comparative Summary of Impacts - Zook Creek

Issues	Proposed Action - No Wilderness	All Wilderness
Wilderness	There would be no short-term impacts on the wilderness characteristics of naturalness. In the long term, the naturalness of the area would be reduced by project maintenance. These impacts would be insignificant.	Wilderness characteristics would be unimpaired. The ecotype diversity of the NWPS would be increased by the addition of a short grass prairie-eastern ponderosa pine ecotype. The area is manageable as wilderness.

Range	No impacts.	Increased cost due to the prohibition of motorized vehicles.
Ranch Economics	No impacts.	Annual income to each of three permittees would drop by $200.

Local Social and Economic Considerations

Increased project maintenance and labor costs of approximately $200 each would be incurred by three permittees due to the prohibition of motorized vehicles. There would be no significant local social impacts if the area were designated wilderness.

Summary of WSA-Specific Public Comments

Study phase considerations included coal and timber values of the unit and the effect of WSA status on agricultural activities. Also noted were the effects of WSA status on coal values outside the unit. Likewise, access to the area might change with WSA or wilderness status. One individual felt that wilderness designation would restrict the area's use by older citizens and would benefit fewer people than present management.

In 1980, eight public RMP/EIS scoping meetings were held in Sheridan, Wyoming, and in Miles City, Hysham, Birney, Broadus, Forsyth, Colstrip, and Ekalaka, Montana. Eleven comments were received during this phase. Most were expressions of preference for or against wilderness designation. Two individuals stated that the area should not be designated wilderness if it holds a potential for mineral development.

Public comments on the Draft RMP/EIS: During the 90-day public comment period, formal public hearings were held in Ekalaka, Broadus, Miles City, Colstrip, and Sheridan, Wyoming. A total of thirty-three comments, both written and oral, was received. The ten directed toward the Zook Creek WSA were split 50/50 for and against wilderness designation.

One state agency commented on the RMP/EIS, but there were no comments from federal or local governments. The single state comment addressed the necessity for carefully evaluating the needs for roads in the WSA.

The U.S. Fish and Wildlife Service recommended wilderness designation for both the Zook Creek and Buffalo Creek WSAs in order to prevent potential impacts to wildlife due to mineral extraction activities.

Comments were also received from the Wildlife Management Institute, Washington, DC which questioned the potential for development of coal resources as a reason for a non-wilderness recommendation.

The Montana Public Lands Council recommended that Zook Creek and Buffalo Creek WSAs not be designated wilderness.

There were no comments from state or local governmental entities specific to the wilderness recommendations.

BUFFALO CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 5,650 acres

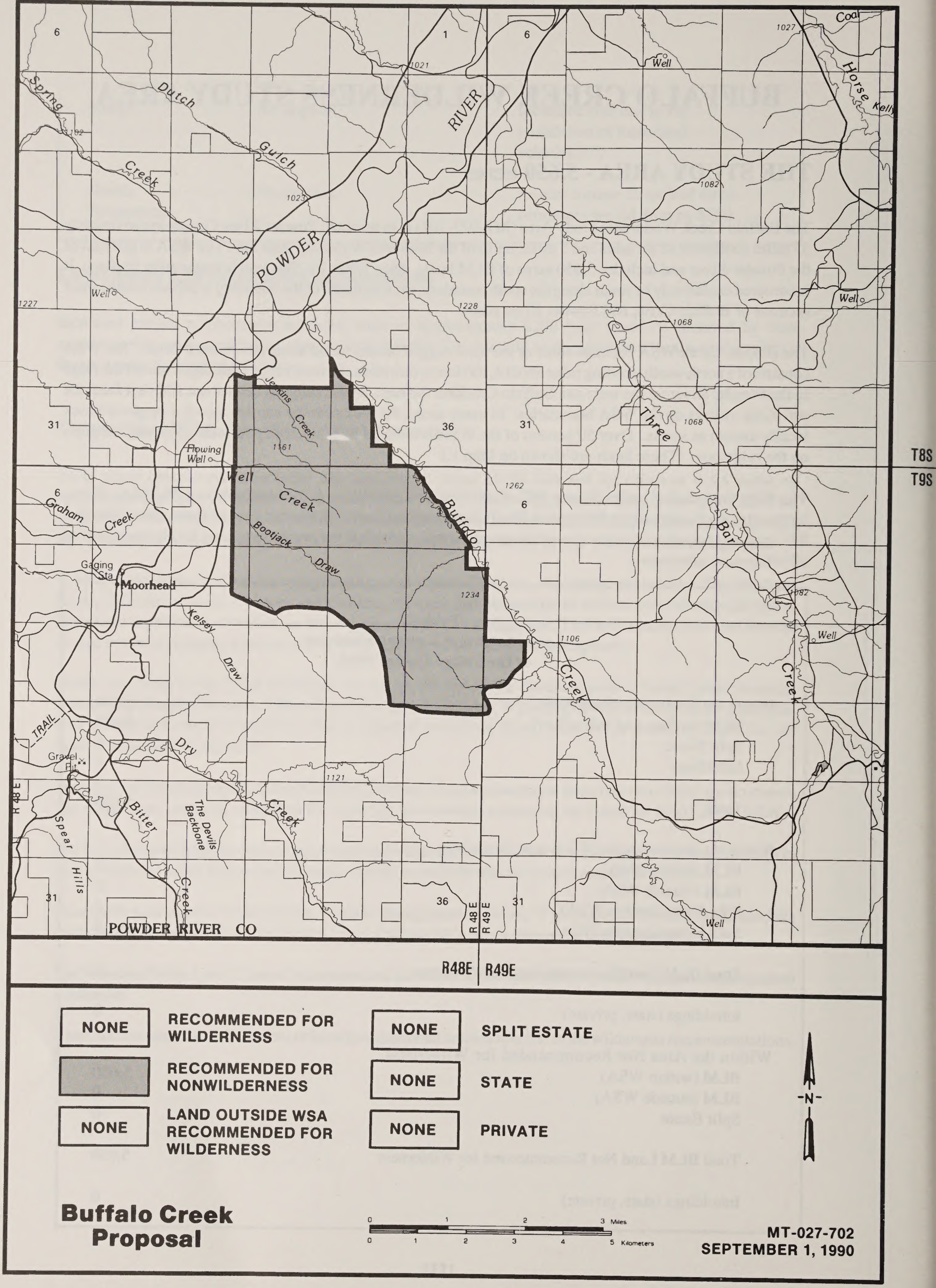
The Buffalo Creek Wilderness Study Area (MT-027-702) is in southern Powder River County approximately 35 miles southwest of Broadus and 5 miles north of the Montana-Wyoming state line. The WSA is just east of the Powder River and includes 5,650 acres of BLM lands. (See Table 1.) This unit is rectangular in shape. It is bordered exclusively by roads along the south boundary; the remainder of the boundary is private land or short sections of Buffalo Creek and Powder River roads.

The Buffalo Creek WSA contains some of the most rugged breaks found along the Powder River. The WSA consists of a north-south trending ridge about 4,100 feet in elevation. Several rugged drainages run off the ridge to the Powder River on the west and Buffalo Creek on the east. These canyons drop about 600 feet from the rim to the valleys on the WSA boundaries. In many areas, the rock near the canyon tops is a bright red rock locally known as scoria. Over 50 percent of the WSA is covered by ponderosa pine with open areas of grass on the ridgetops. (These lands are shown on Map 1.)

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA). It was included in the Powder River Wilderness Final Environmental Impact Statement filed in September 1988. The EIS analyzed two alternatives: a no-wilderness alternative which is the recommendation in this report and an all-wilderness alternative.

Table 1
Land Status and Acreage Summary
of the Bridge Coulee WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	5,650
Split Estate	0
Inholdings	0
Total	5,650
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM (within WSA)	5,650
BLM (outside WSA)	0
Split Estate	0
Total BLM Land Not Recommended for Wilderness	5,650
Inholdings (state, private)	0


6
1
6
1021
Well
1027
Coal
Horse
Kelly
Spring
Dutch
1182
Gulch
RIVER
Creek
1023
1082
POWDER
Well
1227
1228
Well
1068
Jenkins
Creek
Three
1068
31
36
31
1161
Flowing Well
Well
T8S
T9S
1262
Buffalo
6
Creek
6
Graham
Creek
Bootjack
Draw
Bar
Gaging Sta
Moorhead
1234
1082
Kelsey
Draw
1106
Well
Creek
Creek
TRAIL
Gravel Pit
Dry
1121
R 48 E
Bitter
Spear
Hills
The Devils Backbone
Creek
Creek
31
36
R 48 E
R 49 E
31
Well
POWDER RIVER CO
R48E
R49E
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Buffalo Creek Proposal

MT-027-702
SEPTEMBER 1, 1990

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
5,650 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area as wilderness and to release it for uses other than wilderness. The proposed action is not the environmentally preferred alternative, but it will be implemented in a manner that will use all practical means to avoid or minimize environmental impacts.

While this WSA met the minimum requirements for wilderness study, it does not have the wilderness values necessary to enhance the quality of the National Wilderness Preservation System.

The WSA, at 5,650 acres, just meets the size criterion. The area has a few, generally well-screened, developments. However there are three line forms (fence, vehicle way, and pipelines) exposed on the dominant flat ridge that forms the divide between Buffalo Creek and the Powder River. There are no outstanding opportunities for primitive recreation, and outstanding opportunities for solitude exist only in a few isolated pockets in the upper tributary drainages.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: Most of the WSA displays no evidence of human influence. Those imprints that do exist do not degrade substantially the apparent naturalness of the area. Almost all of the improvements occur on the ridgetops in the southern portion of the unit. There are about seven miles of fence in the unit. The most obvious section of fence runs north along the highest ridge from the southeast corner of Section 24, T.9 S., R.48 E.

A pipeline and associated stockwater tanks are the next most obvious human signs, though the pipeline itself is almost invisible; the only evidence is the tanks and the pipeline drains. Two tiny reservoirs are located along the east boundary and are hard to see even a short distance away. A well is located in the northeast part of T.9 S., R.48 E., Section 12. A vehicle way exists in Section 35, T.8 S., R.48 E., and in Sections 2 and 11 of T.9 S., R.48 E. There are several developed springs in the WSA.

Offsite scenes include oil-well pads on the south boundary and roads adjacent to the boundary. Portions of those roads are visible from a few ridges in the WSA. Offsite scenes are not significant due to their low frequency or the small magnitude of their appearance. Human imprints on the WSA, as perceived by the average visitor, are negligible. The highest elevation is 4,100 feet in the southeast and the lowest is 3,400 feet along the western and northern boundary, near the floodplains of Buffalo Creek and the Powder River.

Solitude: Buffalo Creek WSA meets the minimum standards for outstanding opportunities for solitude because of the rugged terrain and numerous trees. The best opportunities for solitude occur in the many canyons off the main ridge in this WSA. Most have numerous side drainages and are heavily vegetated with ponderosa pine, especially the northern slopes. The ridges in the WSA offer lesser opportunities for solitude, because they are narrow and generally flat with only a grassy cover in most places. This condition could pose a problem for visitors' being shielded from each other. Many visitors might tend to hike the easier terrain on the ridges.

Primitive and Unconfined Recreation: Opportunities for primitive and unconfined recreation are not outstanding. Hunting is the only recreational use within the WSA. This WSA is popular with deer hunters. The rugged canyons would make interesting places to explore on foot. There are a few sandstone walls in the lower reaches of some canyons that contrast with the green vegetation of the unit. There also is some potential for horse travel along the open ridge, photography, geologic viewing, and overnight use.

Special Features: No special features were noted at the Buffalo Creek WSA. However, the Reynolds Battlefield site is located on the west bank of the Powder River just opposite the northwestern part of this WSA. This 1876 battle was a prelude to Custer's Last Stand. This site is eligible for National Historic Site status and is in the process of being recommended.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is classified as Great Plains Shortgrass Prairie Province/Eastern Ponderosa Forest 3110/15. There are no representatives in the National Wilderness Preservation System (NWPS), and there are only two other BLM WSAs of this ecotype.

Table 2
Ecosystem Representation
(July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	acres	Other BLM Studies areas	acres
NATIONWIDE				
Dry Domain/ Great Plains Shortgrass Prairie Province Eastern Ponderosa Forest	0	0	0	0
MONTANA				
	0	0	2	15,310

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas areas	acres	Other BLM Studies areas	acres
Billings, Montana	13	4,819,000	76	755,000
Casper, Wyoming	18	4,022,461	35	3,658,295

Balancing the geographic distribution of wilderness areas: In the four-state region of Montana, Idaho, Wyoming and North Dakota, 9.3 million acres in 29 areas are designated wilderness. The nearest wilderness area to the WSA in Montana is the Absaroka-Beartooth. It contains approximately 920 thousand acres and is located 200 miles to the west.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The Buffalo Creek WSA is manageable as wilderness. There are no valid existing rights or ownership conflicts that could impact long-term wilderness management. ORV use could be administered easily due to the confining effects of the rough topography and timbered areas.

Energy and Mineral Resource Values

Buffalo Creek WSA contains significant reserves of coal. A total of 55 million tons with high and moderate development potential has been identified by BLM geologists. Four coal beds with significant reserves exist. There are several additional coal- bearing zones with insignificant reserves at strippable depths. There are no coal analyses for these beds within several miles of the WSA; however, based on analyses of these and other beds in the surrounding region, the coal is ranked lignitic to subbituminous. Values can generally be expected to range from 4 to 8% ash, 0.2 to 0.5% sulfur, and 7,200 BTU/lb. on an as-received basis (BLM Resources Evaluation, Billings, MT; Matson & Blumer, 1973). There are no coal leases or exploration licenses in the WSA.

There are no pre-FLPMA leases and 5,012 acres of post-FLPMA oil and gas leases in Buffalo Creek. There are no oil or gas fields in or within 15 miles of the WSA in Montana; however, several oil fields occur in Wyoming about 10 miles south of the WSA. The area is considered to have a high potential for oil and gas and a low potential for geothermal resources according to BLM geologists.

There are no known locatable or other leasable minerals and no mining claims. The only known saleable minerals are clinker, sand and gravel. Clinker produced by the burning of the Dietz and Canyon beds covers about 600 to 1,000 acres. Clinker produced by other beds covers insignificant areas. Insignifi- cant deposits of sand and gravel occur along the floors of the major drainages.

Industry submitted six Energy & Minerals Resource Evaluation Assessment forms for the Buffalo Creek WSA. Respondents generally indicated high coal potential and moderate to high oil and gas potential. One respondent commented that Buffalo Creek lies along the Minnelusa trend, which has had some recent oil discoveries in Wyoming, just south of the state line. Because there are no Minnelusa tests in the vicinity of the WSA, the respondent predicted that the area would see considerable exploration interest in the near future. There was little interest in other minerals, although gravel was mentioned.

Impacts on Resources

The following comparative impact table summarizes the impacts for all alternatives considered in the PFEIS.

Table 4
Comparative Summary of Impacts - Buffalo Creek

Issue	Proposed Action (No Wilderness)	All-Wilderness Alternative
Impacts on Wilderness Values	There would be no short-term impacts on the naturalness of the area. In the long term, naturalness would be reduced by ORV use and by project construction and maintenance. If energy minerals such as coal or oil and gas were to to be developed, significant impacts to wilderness values could occur.	The wilderness characteristics of the unit would be unimpaired. The ecotype diversity of the NWPS would be increased by the addition of a short grass prairie-eastern ponderosa pine ecotype. The area is manageable as wilderness.
Impacts on Oil and Gas Exploration and Development	No impacts.	Development of oil and gas on 5,012 acres of post-FLPMA leases would be restricted. Expired leases would not be reissued.
Impacts on Range Projects	No impacts.	Surface treatments could not be used to improve range conditions.
Impacts on Hydrology	No significant impacts.	No impacts.
Impacts on Soils	No impacts.	Insignificant impacts.
Impacts on Wildlife	No significant impacts.	No significant impacts.
Impacts on Recreation Use	No impacts.	ORV use would be prohibited. The 150 visitor days associated with this use would be replaced with 75 visitor days of nonmotorized recreation. No impacts on scenic values.
Impacts on Ranch Economics	No impacts.	Annual income to permittees would decrease by $500.

Local Social and Economic Considerations

Permittees would incur increased maintenance and labor costs of approximately $500 each due to the prohibition of motorized vehicles. No significant local social impacts would occur if the area were designated wilderness.

Summary of WSA-Specific Public Comments

During the initial inventory two comments were received. One individual felt the area had interesting landforms and vegetation and should be studied. The other noted the existence of human traces that were not specified on the initial inventory form.

During the intensive inventory, one individual letter was received that included three letters as attachments. The emphasis related to a road in the unit. Other comments concerned the impacts on solitude. Other individuals thought the unit had outstanding opportunities for solitude and met the naturalness characteristic. The opportunities for primitive recreation were thought to be diminished by the presence of rattlesnakes and the lack of water.

Study phase considerations mentioned included the effect of WSA status on fire control activities, the impact of increased visitor use on naturalness, and the relationship between coal developments to the west and WSA or wilderness status.

In 1980, eight public RMP/EIS scoping meetings were held in Sheridan, Wyoming, and in Hysham, Miles City, Forsyth, Colstrip, Birney, Broadus, and Ekalaka, Montana. Ten comments were received during this phase. Most were expressions of preference for or against wilderness designation. However, two comments stated that the area should not be designated wilderness if it has a potential for mineral development.

During the 90-day comment period, formal public hearings were held in Ekalaka, Broadus, Miles City, Colstrip, and Sheridan. During the comment period, thirty-three comments, both oral and written, were received. Of these, eleven comments were directed toward the Buffalo Creek WSA. Fifty-five percent supported nonsuitable designation; forty-five percent favored wilderness designation.

The U.S. Fish and Wildlife Service recommended wilderness designation for both the Zook Creek and Buffalo Creek WSAs in order to prevent potential impacts to wildlife, due to mineral extraction activities.

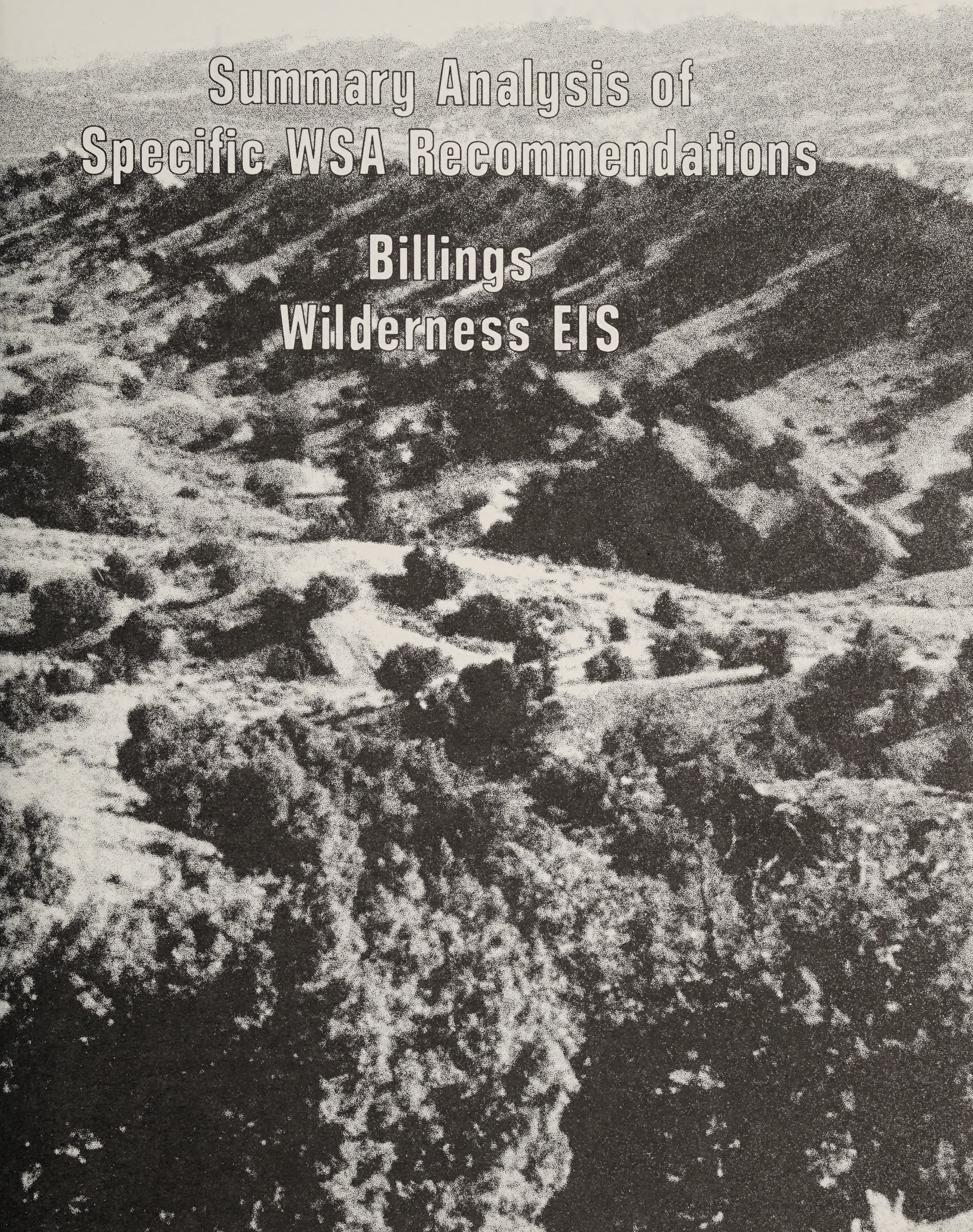
Comments were also received from the Wildlife Management Institute, Washington, D.C., which questioned the potential for development of coal resources as a reason for a non-wilderness recommendation.

The Montana Public Lands Council recommended that Zook Creek and Buffalo Creek WSAs not be designated wilderness.

There were no comments from state or local governmental entities specific to the wilderness recommendations.

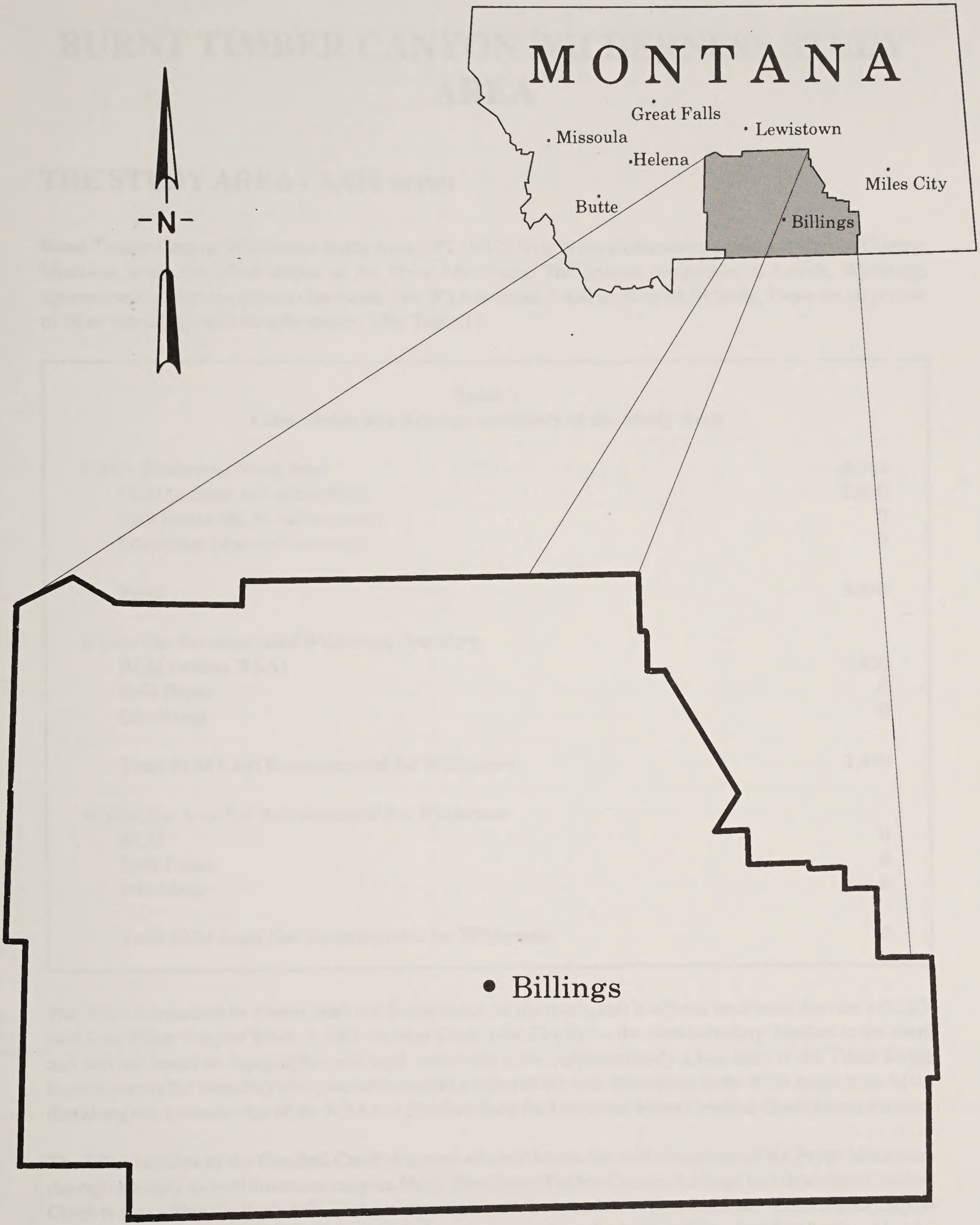
Summary Analysis of Specific WSA Recommendations

Billings Wilderness EIS



Summary of Impacts of Specific WSA Recommendations

Billings Wilderness EIS


MONTANA
Great Falls
Missoula
Lewistown
Helena
Miles City
Butte
Billings
N
Billings

BILLINGS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

BURNT TIMBER CANYON WILDERNESS STUDY AREA

THE STUDY AREA - 3,430 acres

Burnt Timber Canyon Wilderness Study Area (MT-067-205) is in the southeastern portion of Carbon County, Montana, along the south slopes of the Pryor Mountains. The nearest community is Lovell, Wyoming, approximately fourteen miles to the south. The WSA contains 3,430 acres of BLM lands. There are no private or other inholdings and no split estates. (See Table 1.)

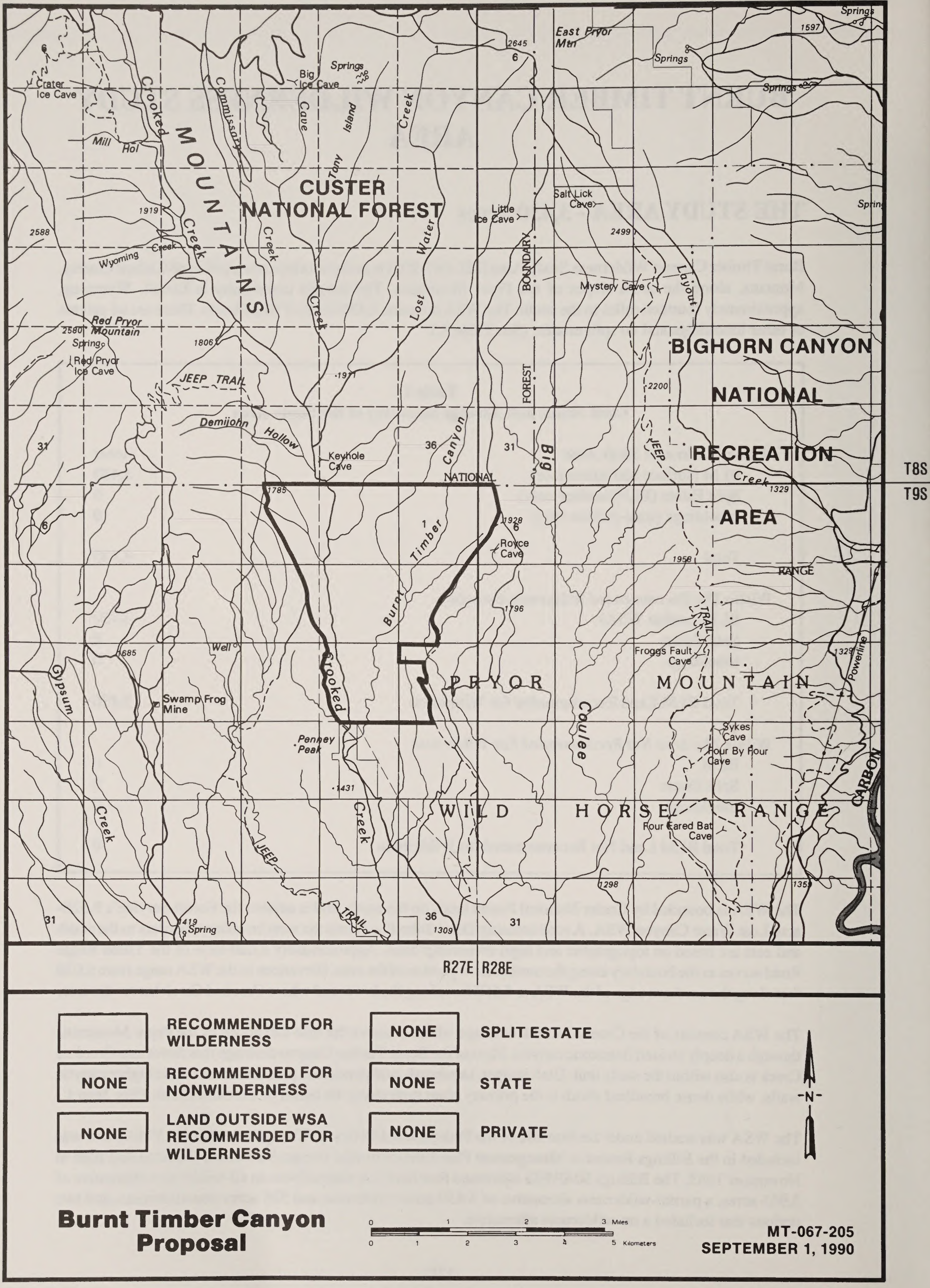
Table 1
Land Status and Acreage Summary of the Study Area

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	3,430
Split Estate (BLM-surface only)	0
Inholdings (state-private only)	0
Total	3,430
Within The Recommended Wilderness Boundary	
BLM (within WSA)	3,430
Split Estate	0
Inholdings	0
Total BLM Land Recommended for Wilderness	3,430
Within The Area Not Recommended For Wilderness	
BLM	0
Split Estate	0
Inholdings	0
Total BLM Land Not Recommended for Wilderness	0

The WSA is bounded by Custer National Forest lands on the north, and it adjoins the Forest Service's 9,520-acre Lost Water Canyon WSA. A road crossing Demi-John Flat forms the west boundary; borders to the south and east are based on topographic and legal ownership lines. Approximately a half-mile of the Tillett Ridge Road serves as the boundary along the northeastern portion of the area. Elevations in the WSA range from 6,020 feet along the northern edge of the WSA to 4,550 feet along the lower end where Crooked Creek leaves the area.

The WSA consists of the Crooked Creek drainage where it leaves the mid-elevations of the Pryor Mountains through a deeply incised limestone canyon. Most of the Burnt Timber Canyon drainage that flows into Crooked Creek is also within the study unit. Utah juniper, sagebrush, and ponderosa pine dominate on the higher canyon walls, while dense broadleaf shrub is the primary plant type along the banks of Crooked Creek. (See Map 1.)

The WSA was studied under Section 202 of the Federal Land Policy & Management Act (FLPMA), and was included in the Billings Resource Management Plan Environmental Impact Statement, finalized and filed in November 1983. The Billings RMP/EIS addressed four land-use alternatives: an all-wilderness alternative of 3,955 acres, a partial-wilderness alternative of 3,430 acres wilderness and 525 acres nonwilderness, and two options that included a no-wilderness alternative.


CUSTER NATIONAL FOREST
PRYOR MOUNTAINS
BIGHORN CANYON NATIONAL RECREATION AREA
PRYOR MOUNTAIN WILD HORSE RANGE
NATIONAL FOREST BOUNDARY
East Pryor Mtn
Crater Ice Cave
Big Ice Cave
Springs
Mill Hol
Crooked Creek
Commissary Creek
Cave Creek
Tony Island
Creek
Wyoming Creek
Lost Water Canyon
Little Ice Cave
Salt Lick Cave
Mystery Cave
Layout Creek
Red Pryor Mountain
Spring
Red Pryor Ice Cave
JEEP TRAIL
Demijohn Hollow
Keyhole Cave
Big Creek
Burnt Timber Canyon
Royce Cave
Well
Swamp Frog Mine
Gypsum Creek
Penney Peak
Coulee
Froggs Fault Cave
Sykes Cave
Four By Four Cave
Four Eared Bat Cave
Powerline
CARBON
Spring
T8S
T9S
R27E R28E
2645
1597
1919
2588
2580
1806
1971
2499
2200
1785
1928
1958
1796
1685
1329
1431
1298
1359
1419
1309
6
1
31
36
-N-
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
NONE	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

Burnt Timber Canyon Proposal

MT-067-205
SEPTEMBER 1, 1990

In the State Director's Record of Decision, the 3,430 acres of the partial-wilderness alternative were brought forward for further study. The remaining 525 acres recommended as nonwilderness were dropped from wilderness review. The Wilderness Final Environmental Impact Statement filed in June 1988 contains an all-wilderness alternative, which is the recommendation of this report, and a no-wilderness alternative.

RECOMMENDATION AND RATIONALE - 3,430 acres recommended for wilderness 0 acres recommended for nonwilderness

The recommendation for this WSA is to designate the area as wilderness. This is considered the environmentally preferable alternative as it will result in the least change from the natural environment over the long term.

The acreage recommended as suitable for wilderness designation encompasses an extremely rugged and isolated portion of Crooked Creek Canyon, which has remained relatively free of modern human influences. This WSA has all requisite wilderness characteristics and would complement the wilderness recommendation for the U.S. Forest Service's Lost Water Canyon Wilderness Study Area to the north and the Pryor Mountain WSA to the east. The WSA is predominantly natural and offers outstanding opportunities for solitude and primitive recreation.

The 3,430 acres recommended for wilderness designation exhibit unique outstanding geologic and scenic values. The major canyon and rugged side canyons cut through several hundred feet of the Pryor Mountain limestone strata. These deep canyons contain numerous caves, rock overhangs, and natural alcoves that provide ample opportunities for exploration.

The deep, profusely vegetated canyon bottoms, while difficult to traverse, offer outstanding opportunities for solitude and isolation. Only the sky overhead, the canyon walls, and the side-canyon openings are visible from the canyon floor. The ridges and canyon rims offer little opportunity for solitude as they are open and sparsely vegetated. These ridge tops however constitute only about 10 percent of the total WSA area. The very ruggedness of the area provides a real challenge to the foot traveler. Dense canyon-bottom vegetation, steep talus slopes, and steep canyon walls make foot traffic difficult. The WSA has outstanding opportunities for photography, rock climbing, nature study, backpacking, spelunking, and hiking.

The major drainage, Crooked Creek, supports a pure strain of native cutthroat trout. The creek is not considered an outstanding fishery as the trout are small and dense brush restricts ready stream access; however, the native trout species have a very high intrinsic value.

The WSA offers the opportunity to observe and photograph wild horses because all of the area, except 430 acres, lies within the Pryor Mountain Wild Horse Range (PMWHR). The WSA also is inhabited by mule deer and black bear; however, big game hunting is quite restricted by topography and dense vegetation.

The WSA has several special features, among which are a portion of the Demi-John Flat Archeological District, noted for its numerous stone rings and rock cairn alignments, the Tillet Petroglyph site, which has been evaluated as having outstanding interpretive potential (Loendorf, 1971), and picturesque geologic formations created by the Crooked Creek drainage.

Conflicts with other resource uses in this WSA are practically nonexistent. The rough broken topography precludes most uses, and timber harvesting is not allowed by land-use plan decision. The decision to protect timber in the WSA is primarily due to topography and limited production. The WSA is rated as having low potential for mineral development, and is rated low to moderate for energy resource potential. No development is projected due to low potential and other resource considerations.

Designation would not significantly impact wild horse management or populations as the area is essentially managed as wilderness at this time. The population levels are controlled through a wild horse management plan that balances horse numbers with the natural forage resource. The WSA is a very small part of this total herd area. A small portion of this WSA, approximately 430 acres in the northwest corner on Demi-John Flat, is licensed for livestock use (capacity: approximately 40 AUMs). This area represents a tiny portion of a large grazing allotment, and as such is neither affected by nor affects the WSA.

In summary, wilderness designation would cause no significant impacts on other resources (timber, grazing, wild horses, oil and gas production, etc.) because no developments or uses are projected or proposed.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The WSA is in a nearly natural condition. A major portion of the area comprises the steep, rugged Crooked Creek Canyon which, because of its nearly inaccessible nature, has remained in a nearly pristine state. There is a one-acre range management exclosure on Demi-John Flat in the northwest corner of the WSA. Approximately 2.5 miles of fence separate BLM lands from Custer National Forest lands on the north.

A bulldozer cut about 200 feet in length is visible on the eastern edge of Crooked Creek Canyon from some points along the western edge of the gorge. This cut was made during uranium-prospecting activities in the 1950's. Five uranium-prospecting pits exist along the west boundary road on Demi-John Flat. The WSA appears to be in a natural state because of the scattered nature of these features and the topographic and vegetative screening of the surrounding environment.

Solitude: The Crooked Creek and Burnt Timber Canyon drainages in the WSA offer outstanding opportunities for solitude. These drainages have cut several hundred feet and more into the limestone strata of the Pryor Mountains. Only the canyon wall and intermittent side drainages are visible from the floor of the canyon. Dense stands of ponderosa pine, limber pine, and Douglas fir exist in several areas along the canyon walls and side drainages. The combination of deeply incised topography and dense vegetation provides recreationists with a strong sense of isolation.

The channeling effect created by the deep canyons is lessened both by their length (approximately 4 miles) and by the heavy vegetative screening. A number of smaller drainages that radiate from the primary drainages would disperse users.

There is little opportunity for solitude on the more open canyon rims and adjacent ridges, particularly in the southern tip of the study area, because of the lack of vegetative or topographic screening. Approximately 10 percent of the area lacks outstanding opportunities for solitude.

Primitive and Unconfined Recreation: There are outstanding opportunities for hiking, backpacking, rock climbing, photography, spelunking, and nature study within the Burnt Timber Canyon WSA. The deeply incised limestone canyons contain many caves, rock overhangs, and alcoves that provide opportunities for exploration. Foot travel along the canyon bottom is difficult because of the dense underbrush and steep rocky talus slopes. The uniqueness of the WSA offsets the difficulty of travel, however.

Crooked Creek, which cuts through the west side of the WSA, offers fishing for brook, rainbow, and cutthroat trout. The trout are small and because of the dense brushy conditions along the banks the fishing is difficult. Black bear and mule deer are the most common big game species, but because of steep, broken topography and dense undergrowth, hunting opportunities are not exceptional.

The geologic and scenic values of the canyons are the most outstanding characteristics of the study area and are unique. All but 430 acres of this unit are within the PMWHR. The opportunity to view and photograph the wild horses is a popular recreation opportunity.

Special Features: Approximately the northeastern one-third of Demi-John Flat is within the WSA. The Demi-John Flat Archeological District, which includes the acreage within the WSA, has been nominated to the National Register of Historic Places. Included within the district is the Demi-John Flat site which contains an abundance of stone rings (over 230) and rock cairn alignments. The site is significant for its large size and distinctive features.

The Tillett Petroglyph site, also within the Demi-John Flat Archeological District and the WSA, has been evaluated as having outstanding interpretive potential (Loendorf, 1971). The petroglyphs were made using paint in combination with incised designs on a rock face.

Fishing opportunities are not outstanding in Crooked Creek. However, the cutthroat trout in the upper portions of the creek are known to represent the only pure strain of Yellowstone cutthroat and therefore have a very high intrinsic value.

The rubber boa, Charina bottae, occurs in the Crooked Creek and Burnt Timber canyons. This snake is quite common in western Montana but the Crooked Creek drainage is one of the most easterly extensions of its range.

Stands of curlleaf mountain mahogany, Cerocarpus ledifolius, are common on Demi-John Flat and in other portions of the PMWHR. The area is one of the more northerly extensions of this plant's range.

The scenic values of this study area are outstanding. The deeply incised canyons formed by the Crooked Creek drainage are especially picturesque. The unique multicolored, multilayered shales and limestones, the erosional geologic formations, and the abundant caves would interest most sightseers and recreationists.

The designation of the PMWHR, the first wild horse range in the United States, helps call attention to the area. The presence of wild horse herds in association with native wildlife species in a natural setting enhances the wilderness qualities of the area.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: Designation of the Burnt Timber Canyon WSA would add diversity to the National Wilderness Preservation System. This WSA is located within Ecoregion M 3110/56 Rocky Mountain Forest Province/Foothills Prairie (Bailey-Kuchler Ecosystems of the United States). Currently two areas in this ecoregion province are components of the National Wilderness Preservation System. Although there is some representation of this ecoregion type in the national system, it is not well represented. See Table 2.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Dry Domain/Rocky Mountain Forest Province/Foothills Prairie	2	4,285	0	0
	MONTANA			
	2	4,285	0	0

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of three major population centers. Table 3 summarizes the number and acreage of designated and other BLM study areas within five hours' driving time of these cities.

Table 3
Wilderness Opportunities For Residents
Of Major Population Centers

	NWPS Areas		**Other BLM Studies**	
Population Centers	**areas**	**acres**	**areas**	**acres**
Billings, Montana	12	4,808,142	54	3,466,800
Great Falls, Montana	19	8,922,567	68	4,617,100
Casper, Wyoming	18	4,022,461	35	3,658,295

Balancing the geographic distribution of wilderness areas: Designation of the Burnt Timber Canyon WSA would not help balance the geographic distribution of wilderness areas. The 920,377-acre Absaroka-Beartooth Wilderness, administered by the U.S. Forest Service, is approximately 50 airline miles to the west of the Burnt Timber Canyon WSA. This wilderness area is quite accessible to residents of Billings, Montana, and smaller communities near Burnt Timber Canyon. The higher elevations in the Pryor Mountains are used extensively by area residents, and wilderness designation would complement this usage.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

Despite the fact that this area is less than 5,000 acres in size, it is manageable as wilderness. With the exception of the small Demi-John Flat area (430 acres) in the northwest corner, this WSA is more or less topographically isolated from ready vehicle access. Topography severely limits motorized travel to the general area where only two ridge lines are accessible to vehicle use: Tillet Ridge, which more or less parallels the east side of the WSA (but touches only the northeast corner), and Crooked Creek Ridge along the WSA's exterior west boundary. The interior of the WSA is accessible by foot or horseback, but is strictly limited to these modes of travel over about 90 percent of its total area. In light of this factor, vehicle use is not a manageability issue.

No private or state inholdings exist in this WSA, so nongovernment access, maintenance, or development is not an issue.

Energy And Mineral Resource Values

The U.S. Geological Survey and U.S. Bureau of Mines has classified this WSA as having a high potential for uranium and vanadium in the northeast portion in the Madison Limestone. The rest of the WSA has a low potential for these two mineral commodities. The entire WSA has a low mineral potential for all other metals, oil and gas, geothermal, and high purity limestone.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for all alternatives considered, including designation or nondesignation of the WSA.

Table 4
Comparative Summary of Impacts - Burnt Timber Canyon

Effects	All Wilderness (Proposed Action)	No-Wilderness Alternative
Impacts on Wilderness Values	Wilderness values on 3,430 acres would be protected and preserved.	Fence and water catchment construction, as well as archeological site stabilization and excavation using motorized equipment, would degrade naturalness and solitude on approximately 100 acres.
Impacts on the Watershed Resource	Watershed conditions would improve on 700 acres in the long term (100 years).	Watershed conditions would improve on 700 acres in the long term (100 years).
Impacts on Mineral Exploration and Development	Though exploration would be prohibited, there would be no effect on mineral production due to low potential for development.	There would be no effect on mineral exploration or production. No exploration or production is anticipated due to low potential.
Impacts on Wild Horse Populations and Management	Some range projects which would benefit wild horses would not be developed, but this would result in insignificant impacts since few projects are proposed.	Range project proposals could be considered without regard for preservation of wilderness values. No impacts to wild horse management would occur.
Impacts on Mule Deer, Black Bear and Bighorn Sheep Habitats and Population	The existing habitat for a population of mule deer and black bear will be protected and preserved. The habitat for bighorn sheep will be enhanced.	The existing habitat for a population of mule deer and black bear will be maintained. The habitat for bighorn sheep will be enhanced.
Impacts on Peregrine Falcon Habitat and Population	The proposed action will protect and preserve peregrine falcon habitat and populations.	Peregrine falcon habitat would remain substantially unchanged. Effects expected are the same as under the proposed action, but this result is not assured.
Impacts on Recreation Use	Annual nonmotorized use will increase by 2 to 3 percent for a decade, then slow to 1 to 2 percent. The opportunity to interpret two of six cultural sites will be forgone.	Annual recreational use of 1500 visitor days will increase by 1 to 2 percent annually, and onsite interpretive signing of six cultural sites will benefit users.
Impacts on Cultural Resources	Seven significant archeological sites will be protected, and additional information will be recovered from one site. Four significant sites will be interpreted for public education.	Seven significant archeological sites will be protected, and additional information will be recovered from one site. Six significant sites will be interpreted for public education.

Local Social and Economic Considerations

There would be no significant local social impacts if the WSA were designated wilderness.

Summary of WSA-Specific Public Comments

During the inventory phase, twenty public comments were received on the Burnt Timber Canyon WSA and were carried forward into the study phase. Nineteen comments favored wilderness designation of the area; one comment opposed wilderness designation because of concern about possible conflicts with wild horse management.

Three wilderness scoping meetings were conducted in May 1982, prior to beginning wilderness study work in the Billings Resource Area. One meeting was held on May 19, 1982, in Lovell, Wyoming. Four people attended. Three individuals were opposed to wilderness designation in the Pryor Mountains because of concern for management of the wild horses. The fourth person expressed concern about the possible impact wilderness designation might have on offsite bentonite mining activities.

The second meeting was held in Billings, Montana, on May 21, 1982. Three individuals attended that meeting and all favored wilderness designation for the Burnt Timber Canyon WSA.

The third meeting was held in Lewistown, Montana, on May 26, 1982. One individual attended but did not express any opinions about possible wilderness designation in the Pryor Mountains.

Two formal public hearings were held in Billings and Lovell during the 90-day comment period on the Draft Billings RMP/EIS. During this time 392 comments, both oral and written, were received. Of these, twenty comments were associated with the Burnt Timber Canyon WSA. Of the twenty, 46 percent supported less wilderness than the Draft EIS proposed, 27 percent supported more or at least the amount proposed, and 27 percent had no position.

The National Park Service favored wilderness designation for the Burnt Timber Canyon WSA. The U.S. Fish & Wildlife Service, the Bureau of Reclamation, and the Environmental Protection Agency commented on the Billings RMP but made no recommendation concerning the Burnt Timber Canyon WSA. The Geological Survey made no recommendation but stated that it and the Bureau of Mines would prepare a comprehensive joint report on the mineral-resource potential of areas recommended suitable for wilderness designation.

Montana state government did not formally comment on the wilderness proposals in the Pryor Mountains. Wyoming state government expressed support for BLM's preferred alternative but felt that the designation should incorporate flexibility sufficient to permit needed range improvements and wild horse management activities.

A meeting was held with the Carbon County Commissioners but its members expressed no concerns about wilderness designation in the Pryor Mountains.

PRYOR MOUNTAIN WILDERNESS STUDY AREA

THE STUDY AREA - 12,575 acres - Montana
4,352 acres - Wyoming

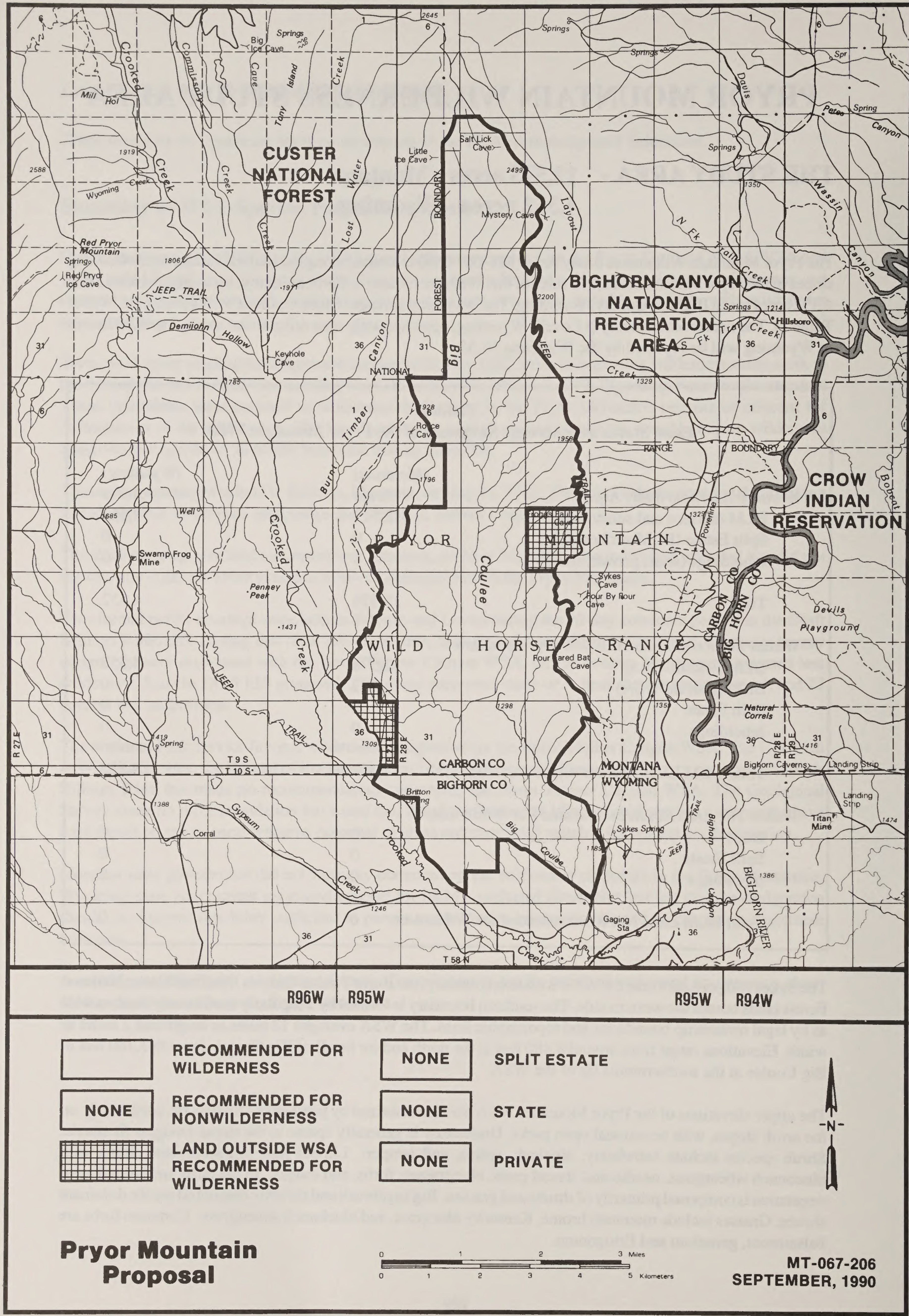
The Pryor Mountain Wilderness Study Area (MT-067-206) is located along the mid-elevation, south-trending slopes of the Pryor Mountains. 12,575 acres of this WSA are located in Carbon County, Montana; the remaining 4,352 acres are in Bighorn County, Wyoming. The Wyoming acreage will be reported by Wyoming BLM (See Table 1). The nearest community is Lovell, Wyoming, approximately nine miles to the south. The 4,352 acres in Wyoming will be reported by the Wyoming BLM.

Table 1
Land Status and Acreage Summary of the Pryor Mountain WSA

	(Montana) *Acres*	*(Wyoming)* *Acres*
Within Wilderness Study Area		
BLM (surface and subsurface)	12,575	4,352
Split Estate (BLM surface only)	0	0
Inholdings (state, private, other)	0	0
Total	12,575	4,352
Within The Recommended Wilderness Boundary		
BLM (within WSA)	12,575	4,352
BLM (outside WSA)	822	0
Split Estate	0	0
Inholdings	0	0
Total BLM Land Recommended for Wilderness	13,397	4,352
Within The Area Not Recommended For Wilderness		
BLM	0	0
Split Estate	0	0
Inholdings	0	0
Total BLM Land Not Recommended for Wilderness	0	0

The Sykes Ridge Road forms the WSA's eastern boundary; the Burnt Timber Canyon Road and Custer National Forest lands border the western side. The southern boundary is formed by a regularly used county road, as well as by legal ownership boundaries and topographic lines. The WSA averages 12 miles in length and 2 miles in width. Elevations range from around 8,480 feet at the north end (or head) of Big Coulee down to 3,780 feet in Big Coulee at the southernmost tip of the WSA.

The upper elevations of the Pryor Mountain WSA are characterized by patches of Douglas fir, particularly on the north slopes, with occasional open parks. Understory is generally sparse in the dense Douglas fir stands. Shrub species include snowberry, ninebark, spirea, and juniper. Limber pine is also present, along with bluebunch wheatgrass, needle-and-thread grass, bluegrasses, forbs, and sedges. In the open, unforested area, vegetation is composed primarily of shrubs and grasses. Big sagebrush and shrubby cinquefoil are the dominant shrubs. Grasses include mountain brome, Kentucky bluegrass, and bluebunch wheatgrass. Common forbs are balsamroot, geranium and Eriogonum.


CUSTER NATIONAL FOREST
BIGHORN CANYON NATIONAL RECREATION AREA
CROW INDIAN RESERVATION
PRYOR MOUNTAIN WILD HORSE RANGE
NATIONAL FOREST BOUNDARY
RANGE BOUNDARY
CARBON CO
BIGHORN CO
MONTANA
WYOMING
CARBON CO
BIG HORN CO
BIGHORN RIVER
T8S
T9S
T9S
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R96W
R95W
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Penney Peek
Devils Playground
Natural Corrals
Hillsboro
Britton Spring
Sykes Spring
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Landing Strip
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Layout Creek
Davis Creek
Wassin Canyon
Petes Spring Canyon
N Fk Trail Creek
S Fk Trail Creek
Bobcat
Demijohn Hollow
Mill Hol
Wyoming Creek
Gypsum Creek
Bighorn Canyon
RECOMMENDED FOR WILDERNESS
NONE
RECOMMENDED FOR NONWILDERNESS
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Pryor Mountain Proposal

MT-067-206
SEPTEMBER, 1990

The mid-elevations of the WSA consist mostly of mountain shrubs. Utah juniper occupies the upper elevations, gradually blending into mountain mahogany and eventually into big sagebrush. Black sage, rabbit brush, and skunkbrush sumac may also be present along with bluebunch wheatgrass, needle-and-thread grass, three-awn, and Sandberg bluegrass.

The Red Desert/saltshrub occurs on the lower elevations of the WSA. Vegetation is generally sparse and scattered. Saltbushes of the Atriplex genus compose the majority of the vegetation.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Billings Resource Management Plan Environmental Impact Statement (RMP/EIS), finalized and filed in November 1984. The Billings RMP/EIS addressed four alternatives: Two depicted an all-wilderness alternative of 16,927 acres; two included a no-wilderness alternative. In the Record of Decision for the Billings RMP/EIS, the all- wilderness 16,927 acres were brought forward for further study. The Billings Resource Area Wilderness Final Environmental Impact Statement filed in June 1988 contains an all-wilderness alternative, which is the recommendation of this report, and a no-wilderness alternative. There are an additional 822 acres of acquired lands recommended for wilderness designation included in this report.

RECOMMENDATION AND RATIONALE -

12,575 acres recommended for wilderness
0 acres recommended for nonwilderness

The recommendation for this WSA is to designate the entire area as wilderness, including the 4,352 acres in Wyoming. This is considered the environmentally preferable alternative as it will result in the least change from the natural environment over the long term.

This WSA contains some of the most rugged, isolated portions of the Pryor Mountain Range. The wide expanses and topographic screening in this area offer outstanding wilderness values. This unit is in the heart of the Pryor Mountain Wild Horse Range (PMWHR), and the supplemental attributes of free-roaming wild horse herds enhance the wilderness characteristics of the area. The few signs of human activity are well distributed throughout the WSA. Vegetation and topographic screening significantly limit any detractions from the WSA's extensive natural setting.

The rough, broken, and highly varied topographic features of the WSA provide excellent opportunities for isolation and solitude. The WSA exhibits a rapid elevation change, dropping from 8,400 to 3,800 feet in less than 13 miles. Its even, open ridge tops offer a strong sense of solitude and isolation; the southern aspect provides a vast panorama.

Opportunities for nature photography, rock climbing, hiking, backpacking, nature study, and viewing a variety of multicolored erosional geologic features are outstanding. The WSA contains a wide spectrum of geologic and biotic features, ranging from elements typical of desert environments to those found only in sub-alpine mountainous settings — in less than 13 miles.

Conflicts with other resource uses in the WSA are minimal. Topography severely limits any potential cross-country vehicle travel. Commercial timber harvesting in the WSA is not allowed. There is no licensed livestock use in the WSA, nor are there any oil or gas leases. The development potential for petroleum resources is rated low to moderate. The WSA contains a major portion of the Pryor Mountain Wild Horse Range (PMWHR); however, since the management plan for the PMWHR was written with possible wilderness designation in mind, very little conflict exists with management of the wild horse range.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The majority of the WSA is in a natural condition. Topog- raphy severely limits any possibility of cross-country vehicle travel and the WSA does not exhibit significant evidence of human use. The limited evidence of human presence within the study area is not concentrated in any particular area and mostly is well screened by topography and vegetation. The area contains one range-management exclosure, one water catchment, one reservoir, three wild horse traps, 4.5 miles of fence, and 6 miles of vehicular ways. There are at least twenty-three prospecting pits for uranium within the study area, mostly located along or near boundary roads. The overall influence of human features within the study area as perceived by the average visitor is negligible.

Solitude: Opportunities for solitude throughout the majority of the WSA are outstanding. The intricate drainage patterns and topographic relief offer individuals or groups ample opportunities for isolation.

The WSA is extensive, being 13 miles in length and one to three miles in width. Elevations rise from around 3,800 feet in the south to nearly 8,500 feet in the north. The topography varies from an arid sonoran landform in the south, to mountain foothills in the central region, to densely forested mountains in the north. Each portion offers excellent opportunities for solitude.

The expanse of the southern portion compensates for its lack of vegetative screening. Patches of juniper and eroded hills provide some screening. The central portion is more broken with many patches of timber. The mountain topography in the north is characterized by steep cliffs, dense timber, and excellent opportunities for solitude.

Big Coulee is the major north-south drainage near the center of this WSA. This deep channel with an array of rugged side drainages would tend to spread users and increase opportunities for solitude.

Primitive and Unconfined Recreation: The WSA's foothills and canyons offer excellent opportunities for hiking, backpacking, nature and wildlife photography, rock climbing, nature study, and viewing geologic features.

Hunting opportunities would not be outstanding in relation to the higher forested areas to the north. Horseback riding opportunities would be excellent, but on a short-trip basis. The lack of water and grass would limit this activity unless hay was brought into the area. Water is available at only a few locations.

This WSA is located in the central portion of the Pryor Mountain Wild Horse Range and wild horses can be observed throughout the area, especially around watering places. The presence of wild horses is one of the major reasons for the current recreational use in the area.

Special Features: The designation of the Pryor Mountain Wild Horse Range, the first in the United States, is a noteworthy feature. The presence of wild horse herds, in association with native wildlife species, enhances the wilderness qualities of the area. Approximately 120 wild horses roam the PMWHR.

Several archeological sites have been found in this study area. Dominant site types are lithic scatters, some of which also contain hearths, and discarded or lost stone tools. Also, both vertebrate and invertebrate fossils have been found in the area. The Crooked Creek Natural Landmark is a National Register site for vertebrate fossils.

The primary big game species found in the study area are mule deer, Rocky Mountain bighorn sheep, and black bear. Mule deer are the most abundant of these species. Black bear are also quite abundant in the northern portion of the WSA; this area provides the necessary hibernating, forage, and cover requirements.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: Wilderness designation of the Pryor Mountain WSA would not expand the diversity of natural systems and features, as represented by ecosystems and landforms. This WSA is located within Ecoregion M 3110/11 Rocky Mountain Forest Province, Douglas Fir Forest (Bailey-Kuchler Ecosystems of the United States). Currently there are 17 areas in this ecoregion province are components of the National Wilderness Preservation System and 23 WSAs being considered for wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation
(July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	14	1,046,482	12	98,328
MONTANA				
	3	142,874	11	101,052

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of three major population centers. Table 3 summarizes the number and acreage of designated and other BLM study areas within five hours' driving time of these cities.

Table 3
Wilderness Opportunities For Residents
Of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings, Montana	12	4,808,142	54	3,466,800
Great Falls, Montana	19	8,922,567	68	4,617,100
Casper, Wyoming	18	4,022,461	35	3,658,295

Balancing the geographic distribution of wilderness areas: Designation of the Pryor Mountain WSA would not help balance the geographic distribution of wilderness areas. The 920,377-acre Absaroka-Beartooth Wilderness, administered by the U. S. Forest Service, is approximately 50 airline miles to the west of the Pryor Mountain WSA. This wilderness area is quite accessible to residents of Billings, Montana, and smaller communities near the Pryor Mountains. The higher elevations in the Pryor Mountains are used extensively by area residents, and wilderness designation would complement this usage.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The Pryor Mountain WSA is manageable as wilderness because there are no valid existing rights or land ownership conflicts that could impact long-term wilderness management. As wilderness, the WSA would complement the Forest Service's 9,520-acre Lost Water Canyon Study Area to the northwest, the BLM's two adjacent study areas (Burnt Timber Canyon WSA and Big Horn Tack-on WSA, totaling 5,430 acres), and the nearby 8,108-acre WSA of the National Park Service.

The WSA, while bordered by two primitive roads, has limited vehicle access, which could easily be managed. Topographic features would preclude much cross-country vehicle use, so this concern would not be a significant management factor.

The PMWHR, which includes this WSA, has been managed for many years under a near-wilderness situation. The area is closed to ORV use, is not leased for oil and gas, and is not licensed for livestock use. Commercial timber harvesting is prohibited, past mineral activity has all but died out, and there are no other permitted nonconforming uses (i.e., easements or rights-of-way).

Energy and Mineral Resource Values

The U.S. Geological Survey and the U.S. Bureau of Mines, in their Mineral Assessment report, have classified the western portion of the Pryor Mountain WSA as having high potential, the eastern portion as moderate, and the central portion as low potential for uranium and vanadium. The extreme southern tip of the WSA has a moderate potential for bentonite. The entire area has a low potential for other metals (other than uranium and vanadium), oil and gas, and high purity limestone.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered: designation and non-designation.

Table 4
Comparative Summary Of Impacts - Pryor Mountain WSA

Issues	Wilderness Alternative (Proposed Action)	No-Wilderness Alternative
Impacts on Wilderness Values	The high levels of naturalness and outstanding opportunities for solitude would be statutorily protected and preserved on 16,927 acres. These values would be enhanced slightly by the rehabilitation of two acres of mining claim disturbance, and solitude would be slightly enhanced by the elimination of claim maintenance and snowmobile use.	Mining claim maintenance, snowmobile use, fence construction, and archeological site stabilization using motorized equipment would slightly degrade naturalness and solitude on approximately 6,000 acres.

Impacts on the Watershed Resource	Over the long term (100 years), the projected improvement in ecological range conditions on 11,000 acres will be a benefit to watershed conditions. Improvements in watershed conditions due to prevention of mineral assessment work would be positive.	Over the long term (100 years), the projected improvement in ecological range conditions on 11,000 acres will be a benefit to watershed conditions.
Impacts on Mineral Exploration and Production	Although exploration would be prohibited, there would be no effect on mineral production due to low potential for development.	No effect on mineral exploration or development on 16,767 acres. No exploration or production is anticipated due to low development potential.
Impacts on Wild Horse Populations and Management	Some range projects would not be developed, which would benefit wild horse management. Impacts would be insignificant since few projects are proposed.	Range project proposals could be considered without regard for preservation of wilderness values. No impacts to wild horse management.
Impacts on Mule Deer, Black Bear, and Bighorn Sheep Habitat and Populations	The proposed action will protect and preserve the existing habitat for mule deer, black bear, and bighorn sheep.	The existing habitat for mule deer, black bear, and bighorn sheep will be maintained.
Impacts on Peregrine Falcon Habitat and Population	The proposed action will protect and preserve peregrine falcon habitat and populations.	Peregrine falcon habitat would remain substantially unchanged. Expected effects are essentially the same as under the proposed action.
Impacts on Recreation Use	Fifty snowmobile user days will be forgone and annual nonmotorized use 3,000 visitors should rise by 2 to 3 percent for a decade, then return to a 1-to-2 percent annual increase. The opportunity to interpret one cultural site by signing will be forgone.	Annual recreational use of 3,000 visitor days will rise by 1 to 2 percent annually, and onsite interpretive signing of one cultural site will benefit users.
Impacts on Cultural Resources	Two significant archeological sites will be preserved and protected.	Two significant archeological sites will be preserved and protected. One significant site will be interpreted for public education.

Local Social and Economic Considerations

There would be no significant local, social, or economic impacts if the WSA were designated wilderness.

Summary of WSA-Specific Public Comments

During the inventory phase, twenty-one public comments were received on the Pryor Mountain WSA and carried forward into the study phase. Twenty comments favored wilderness designation of the area, while one comment was opposed because of concern about possible conflicts with wild horse management.

Three wilderness scoping meetings were conducted in May 1982, before wilderness study work in the Billings Resource Area began. The first meeting was held on May 19, 1982, in Lovell, Wyoming. Of four people attending, three were opposed to wilderness designation in the Pryor Mountains because of concern for management of the wild horses. The fourth individual expressed concern about the possible impact wilderness designation might have on offsite bentonite mining activities.

A second meeting was held in Billings on May 21, 1982. Three individuals attended that meeting and all favored wilderness designation for the WSA.

The third meeting was held in Lewistown, Montana, on May 26, 1982. One individual attended that meeting, but did not express any opinions about possible wilderness designation in the Pryor Mountains.

Two formal public hearings were held in Billings and Lovell during the 90-day comment period on the Draft Billings RMP/EIS. During this time 392 comments, both oral and written, were received. Twenty-four of these comments were associated with the WSA. Of that number, 21 percent were in favor of less wilderness than the preferred alternative, 38 percent took no pro or con position, and 40 percent supported either the proposed preferred alternative or more wilderness than proposed.

The National Park Service favored wilderness designation for the Pryor Mountain WSA. The U.S. Fish & Wildlife Service, Bureau of Mines, Department of the Army, Bureau of Reclamation, and Environmental Protection Agency commented on the Draft EIS, but made no recommendation concerning this WSA.

Montana state government did not formally comment on the wilderness proposals in the Pryor Mountains. Wyoming state government said that it supported BLM's preferred alternative, but felt that sufficient flexibility should be incorporated in the designation to allow for needed range improvements and wild horse management activities.

A meeting was held with the Carbon County Commission, but its members expressed no concerns about wilderness designation in the Pryor Mountains.

BIG HORN TACK-ON WILDERNESS STUDY AREA

THE STUDY AREA - 2,470 acres - Montana
353 acres - Wyoming

The Big Horn Tack-On Wilderness Study Area (MT-067-207) is located along the southfacing slopes of the East Pryor Mountains within the Pryor Mountain Wild Horse Range (PMWHR). The study area is approximately 17 miles north of Lovell, Wyoming. 353 acres of the study area are located in Big Horn County, Wyoming; the remaining 2,470 acres are in Carbon County, Montana. (See Table 1.) The 353 acres in Wyoming will be reported by the Wyoming BLM.

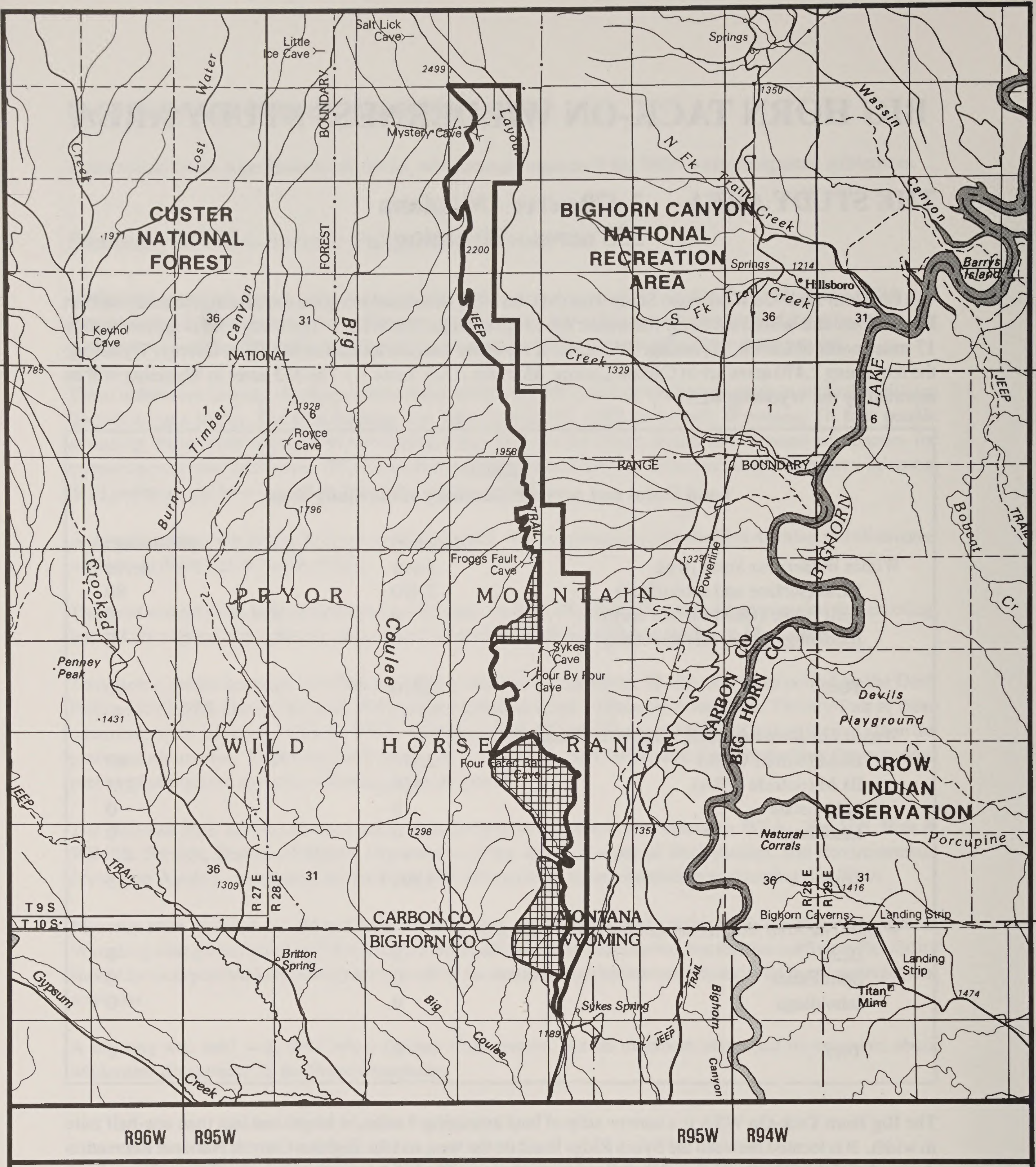
Table 1
Land Status and Acreage Summary of the Study Area

	(Montana)	*(Wyoming)*
Within Wilderness Study Area	*Acres*	*Acres*
BLM (surface and subsurface)	2,470	80
Split Estate (BLM surface only)	0	0
Inholdings (state, private, other)	0	0
Total	2,470	80
Within The Recommended Wilderness Boundary		
BLM (within WSA)	2,470	80
BLM (outside WSA)	838	273
Split Estate	0	0
Inholdings	0	0
Total	3,308	353
Within The Area Not Recommended For Wilderness		
BLM	0	0
Split Estate	0	0
Inholdings	0	0
Total	0	0

The Big Horn Tack-On WSA is a narrow strip of land averaging 9 miles in length and less than one-half mile in width. It is located between the Sykes Ridge Road on the west and the Bighorn Canyon National Recreation Area, administered by the National Park Service, on the east. The WSA consists primarily of steep slopes rising up to a narrow ridge. Just below the ridge crest is the Sykes Ridge Road, which extends the entire nine-mile length of the WSA and forms the western boundary. The Sykes Ridge Road is a BLM access route through the PMWHR.

Elevations range from about 8,100 feet in the north end of the WSA to 4,040 feet in the southern tip.

The WSA was studied under Section 202 of the Federal Land Policy & Management Act (FLPMA) and was included in the Billings Resource Management Plan Environmental Impact Statement (RMP/EIS) filed in November 1983. The Billings RMP/EIS addressed four alternatives: an all-wilderness alternative of 4,550 acres, a partial-wilderness alternative of 2,550 acres, and two options that included the no-wilderness


Salt Lick Cave
Little Ice Cave
2499
Springs
1350
Wassin Canyon
Mystery Cave
Layout
Lost Water Creek
BOUNDARY
FOREST
N Fk Trail Creek
CUSTER NATIONAL FOREST
1911
BIGHORN CANYON NATIONAL RECREATION AREA
Barrys Island
2200
Springs
1214
Hillsboro
S Fk Trail Creek
Keyhole Cave
36
31
Canyon
NATIONAL
Big
JEEP
Creek
1329
1785
T8S
T9S
LAKE
JEEP
1
1928
6
Timber
Royce Cave
1958
RANGE
BOUNDARY
Burnt
1796
TRAIL
Bobcat Cr
TRAIL
Crooked
Froggs Fault Cave
1329
Powerline
BIGHORN
PRYOR
MOUNTAIN
Sykes Cave
Four By Four Cave
Coulee
CARBON CO
BIG HORN CO
Devils Playground
Penney Peak
1431
WILD
HORSE
RANGE
Four Chated Bat Cave
CROW INDIAN RESERVATION
JEEP
1298
1351
Natural Corrals
Porcupine
TRAIL
36
1309
R 27 E
R 28 E
31
36
R 28 E
R 29 E
31
1416
T 9 S
T 10 S
CARBON CO
BIGHORN CO
MONTANA
WYOMING
Bighorn Caverns
Landing Strip
T9S
T58N
Britton Spring
Landing Strip
Gypsum
TRAIL
Bighorn
Titan Mine
1474
Big
Sykes Spring
Coulee
1189
JEEP
Canyon
Creek
R96W
R95W
R95W
R94W

☐	RECOMMENDED FOR WILDERNESS
NONE	RECOMMENDED FOR NONWILDERNESS
▦	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

N

Big Horn Tack-on Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-067-207
SEPTEMBER, 1990

alternative. In the Record of Decision issued in September 1984, 2,550 acres of this WSA were brought forward for further study and the remaining 2,000 acres of the area were dropped from wilderness review. The Wilderness Final Environmental Impact Statement filed in June 1988 contains an all-wilderness alternative, which is the recommendation of this report, and a no-wilderness alternative. Included in this report are 138 acres of acquired lands and 700 acres of land previously segregated from the WSA by roads. These lands are recommended for wilderness designation. The roads bordering the east sides of these islands of land have recently been closed to all traffic. (See map).

RECOMMENDATION AND RATIONALE -

2,470 acres recommended for wilderness

0 acres recommended for nonwilderness

The recommendation for this WSA is to designate the entire area wilderness, including 353 acres in Wyoming. This is considered the environmentally preferable alternative as it will result in the least change from the natural environment over the long term.

This WSA extends along about 7 miles of the east side of the Pryor Mountain WSA and 9 miles along the west side of the Big Horn Canyon WSA administered by the National Park Service. Designation of this tack-on would eliminate a long narrow island of public land between those two WSAs.

The WSA is primarily in a natural state with a few dispersed, but fairly well-screened, human intrusions. These consist of uranium exploration pits (20'x25', 3' deep), a wild horse trap in the northern portion along the west boundary road, and vehicle ways (two track), one in the north and one in the south end of the WSA. Topographic and vegetative features screen these intrusions.

This WSA, by itself, does not contain the opportunities for solitude or unconfined recreation that are typical of the adjacent WSAs. While in some areas vegetation or broken topography may provide limited opportunities, these do not exist to any significant extent. If the WSA is incorporated with the wilderness proposals on either side, however, it complements all of their outstanding characteristics. On the other hand, nondesignation and subsequent use of other resources could significantly and adversely impact the adjacent WSAs. The WSA does contain outstanding scenic opportunities.

Conflicts with other resource uses are practically nonexistent. The narrow configuration and steep broken topography render the WSA unsuitable for most uses. Timber harvesting is prohibited throughout the area and very little timber exists within the WSA. No grazing, ORV use, land-use actions (easements or rights-of-way), or oil and gas leasing is permitted. Mineral resource development potential is low, and past activity associated with uranium exploration has died out.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The WSA appears to be in a natural state because of the scattered nature of the constructed features and the topographic and vegetative screening of the surrounding environment.

There are some signs of human presence. The WSA contains a BLM horse trap used for capturing excess wild horses. It is constructed of native materials and is well screened by vegetation and topographic features. The area contains several uranium prospect pits and approximately 1.5 miles of low quality two-track vehicle ways. There is a radio repeater in Section 21 along the north boundary of the WSA.

Solitude: The WSA is approximately 9 miles in length and less than a half-mile wide in most areas. Toward the southern end it widens to approximately one mile. This portion of the area consists of the crest of Sykes Ridge and the west-trending slopes just below Sykes Ridge. This high limestone ridge rises in elevation from approximately 4,000 feet in the extreme southern portion to 8,000 feet in the north. The crest of the ridge primarily comprises steep, rocky outcroppings.

From Sykes Ridge, wilderness users would be able to detect traffic on the Bad Pass Highway within the Big Horn Canyon National Recreation Area. At most points, this highway is approximately one and one-half miles to the east.

Outstanding opportunities for solitude in the tack-on itself are limited because of the elevated, open nature of Sykes Ridge, the nearby location of the boundary road, and offsite impacts associated with the Bad Pass Highway. Small timbered areas in the northern portion of the area provide some areas with opportunities for solitude.

Primitive and Unconfined Recreation: Two caves in the WSA provide spelunking opportunities. These opportunities could not be considered outstanding, however, because of limited access and, in one situation, a dangerous point of entry. For experienced climbers, the possibility of rock climbing exists on some of the sheer limestone cliff faces and pinnacles.

Hiking and associated photography and sightseeing activities are outstanding. The topographic relief, the unique geologic formations, and the wide expanse of rugged country within view from the ridge tops present a variety of challenges to potential users.

Hunting could not be considered outstanding in relation to opportunities in adjacent areas. Big game, primarily mule deer, are more frequently found on the National Forest lands to the west. There is some black bear hunting in the Pryor Mountains, but this too occurs most commonly on National Forest lands. Some hunting would occur within the area in association with the more concentrated activity on adjacent lands.

Special Features: The scenic quality of the surrounding area is outstanding. The deeply incised Big Horn Canyon is clearly visible to the east and northeast from Sykes Ridge. To the south and southwest, the hillsides and steeply incised canyons of the PMWHR are within view. Colorful marine rock formations lie exposed within the Big Horn Canyon and the PMWHR. Their hues range from blues, greens and grays to the reds of the Chugwater formation. Conifers in the higher elevation National Forest lands to the west and northwest create a predominantly deep green contrast to the more arid lowlands of the horse range.

Because the WSA is located within the PMWHR, wild horse viewing opportunities from the WSA's main ridgeline are excellent.

Archeological sites have been recorded within the study area. Lithic scatters dominate the site types found in the unit, but one vision-quest site has been discovered as well.

The small herd of Rocky Mountain bighorn sheep in this area is an important supplemental feature.

Diversity In The National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: Wilderness designation of the Big Horn Tack-On WSA would not add diversity to the National Wilderness Preservation System. This study area is in Ecoregion M 3110/11, Rocky Mountain Forest Province, Douglas Fir Forest (Bailey-Kuchler Ecosystems of the United States). Currently, there are 17 areas in this ecoregion which are components of the National Wilderness Preservation System and 23 WSAs being considered for wilderness designation. This information is summarized in Table 2.

Table 2
Ecosystem Representation
(July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	14	1,046,482	12	98,328
MONTANA				
	3	142,874	11	101,052

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of three major population centers: Billings and Great Falls, Montana, and Casper, Wyoming. Table 3 summarizes the number and acreage of designated and other BLM study areas within five hours' driving time of these population centers.

Table 3
Wilderness Opportunities For Residents Of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Billings, Montana	12	4,808,142	54	3,466,800
Great Falls, Montana	19	8,922,567	68	4,617,100
Casper, Wyoming	18	4,022,461	35	3,658,295

Balancing the geographic distribution of wilderness areas: Wilderness designation of the Big Horn Tack-On WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The 920,377-acre Absaroka-Beartooth Wilderness, administered by the U.S. Forest Service, is approximately 54 airline miles west of the Big Horn Tack-On. This wilderness area is quite accessible to residents of Billings and smaller communities nearby. The higher elevations in the Pryor Mountains are used extensively by area residents, however, and wilderness designation would complement this usage.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The WSA is manageable as wilderness only in conjunction with BLM's Pryor Mountain WSA and the National Park Service's Big Horn Canyon study area. This long, narrow area splits the two adjacent study areas, and shares common boundaries for approximately 9 miles with those units. Although the Big Horn Tack-On could not be managed by itself, its designation would contribute significantly to the manageability of the adjacent WSAs as wilderness, and vice versa. There are no proposed activities by any resource or use that would affect this WSA.

Energy and Mineral Resource Values

The U.S. Geological Survey and Bureau of Mines assessed the mineral potential of this WSA in 1985. Designation of this WSA as wilderness would cause very little impact on energy and mineral resource development. Prospective mineral resources that may occur in the study area are uranium/vanadium (moderate potential), limestone, and oil and gas. The uranium/vanadium mineralization is primarily confined to the contact zone between the Madison and Amsden formations, mostly outside the study unit on nearby Big Pryor Mountain and Burnt Timber Ridge. Although over 500 uranium occurrences are known within the Pryor Mountains, most contain only traces of mineralized material.

Limestone is found throughout the entire study area and is currently being mined approximately 14 airline miles to the west near Warren, Montana. Other deposits of limestone that could be used for commercial purposes are common throughout the Pryor Mountains.

There are no known deposits of oil and gas within or near the study are. No portion of the WSA is leased for oil and gas. The study area has a low potential for all metals (except uranium and vanadium), oil and gas, geothermal sources, and high purity limestone. There is no potential for sand and gravel in the study area.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered.

Table 4
Comparative Summary of Impacts - Big Horn Tack-On WSA

Issues	All Wilderness - Proposed Action	No-Wilderness Alternative
Impacts on Wilderness Values	All wilderness values on 2,550 acres would be protected and preserved.	Naturalness and solitude would be slightly degraded on 20 acres by construction of a water catchment and one half-mile of fence.
Impacts on the Watershed Resource	Watershed conditions would improve on 1,600 acres in the long term (100 years).	Watershed conditions would improve on 1,600 acres in the long term (100 years). These impacts are identical to those under the proposed action.
Impacts on Mineral Exploration and Production	Though exploration would be prohibited, there would be no effect on mineral production due to low potential for such development.	There would be no effect on mineral exploration or production. None is anticipated due to low development potential.
Impacts on Wild Horse Population and Management	Some range projects would not be developed, but this would result in minor impacts since very few developments are proposed.	Range project proposals could be considered without regard for preservation of wilderness values. No impacts to wild horse management.

Impacts on Mule Deer, Bear, and Bighorn Sheep Habitat and Population	Existing habitat for mule deer, black bear, and bighorn sheep will be protected and preserved.	The existing habitat for mule deer, black bear, and bighorn sheep Black will be maintained.
Impacts on Peregrine Falcon Habitat and Population	The proposed action will protect and preserve peregrine falcon habitat and population.	Peregrine falcon habitat would remain substantially unchanged. Expected impacts under this alternative would be essentially the same as under the proposed action.
Impacts on Recreation Use	An increase will occur in nonmotorized use of 2 or 3 percent for a decade.	An increase will occur in nonmotorized use of 850 visitor days or 1 to 2 percent annually.
Impacts on Cultural Resources	Archeological sites will be protected and preserved.	Archeological sites will be protected.

Local Social and Economic Considerations

There would be no significant local social or economic impacts if the WSA were designated wilderness.

Summary of WSA-Specific Public Comments

During the inventory phase, six comments were received specifically on the Big Horn Tack-On WSA and carried forward into the study phase. Five comments favored wilderness designation because of concern about possible conflicts with wild horse management.

Three wilderness scoping meetings were conducted in May 1982, before wilderness study work in the Billings Resource Area began. The first meeting was held on May 19, 1982, in Lovell, Wyoming. Of four people attending this meeting, three were opposed to wilderness designation in the Pryor Mountains because of concern for management of the wild horses. The fourth individual expressed concern about the possible impact wilderness designation might have on offsite bentonite mining activities to the south of the study area.

A second meeting was held in Billings on May 21, 1982. Three individuals attended that meeting; all favored wilderness designation for the Big Horn Tack-On WSA.

The third meeting was held in Lewistown, Montana, on May 26, 1982. One individual attended that meeting but did not express any opinions about possible wilderness designation in the Pryor Mountains.

Formal public hearings were held in Billings and Lovell during the 90-day comment period on the Draft Billings Resource Area RMP/EIS. During this time 392 oral and written comments were received. Of these, twenty-three comments were associated with the Big Horn Tack-On WSA: 35 percent favored more wilderness than the proposal, 17 percent favored less wilderness, and 48 percent expressed no position.

The National Park Service recommended that wilderness designation be sought for the Big Horn Tack-On WSA, particularly the southern segment. The U.S. Fish & Wildlife Service, Bureau of Mines, Department of the Army, Bureau of Reclamation, and Environmental Protection Agency commented on the Draft RMP, but made no recommendations concerning the Big Horn Tack-On WSA.

Montana state government did not formally comment on the wilderness proposals in the Pryor Mountains. Wyoming state government said that it supported BLM's preferred alternative but felt that sufficient flexibility should be incorporated in the designation to allow for needed range improvements and wild horse management activities.

A meeting was held with the Carbon County Commission but its members expressed no concerns about wilderness designation in the Pryor Mountains.

TWIN COULEE WILDERNESS STUDY AREA

THE STUDY AREA - 6,870 acres

Twin Coulee Wilderness Study Area (MT-067-212) is located on the southeast flank of the Big Snowy Mountains in Golden Valley County, Montana. The WSA is approximately 35 miles south of Lewistown. It consists of an isolated block of public lands. There are no private or other inholdings and no split estates.

The WSA is bordered by the Lewis & Clark National Forest lands on the north and west sides, by a county route (Red Hill Road) on the east, and by private lands on the south. The bulk of the WSA is approximately 2 miles in width and 4.5 miles in length with a core-to-perimeter distance exceeding one mile. The northeast portion of the WSA contains a narrow finger of land about 250 yards wide projecting north for 3 miles (see Map 1).

Twin Coulee WSA consists of steep, mountainous topography with several deeply incised drainages. Most of the WSA is made up of a mixed coniferous forest with bunch grasses for an understory. Elevations range from approximately 5,500 to 7,600 feet.

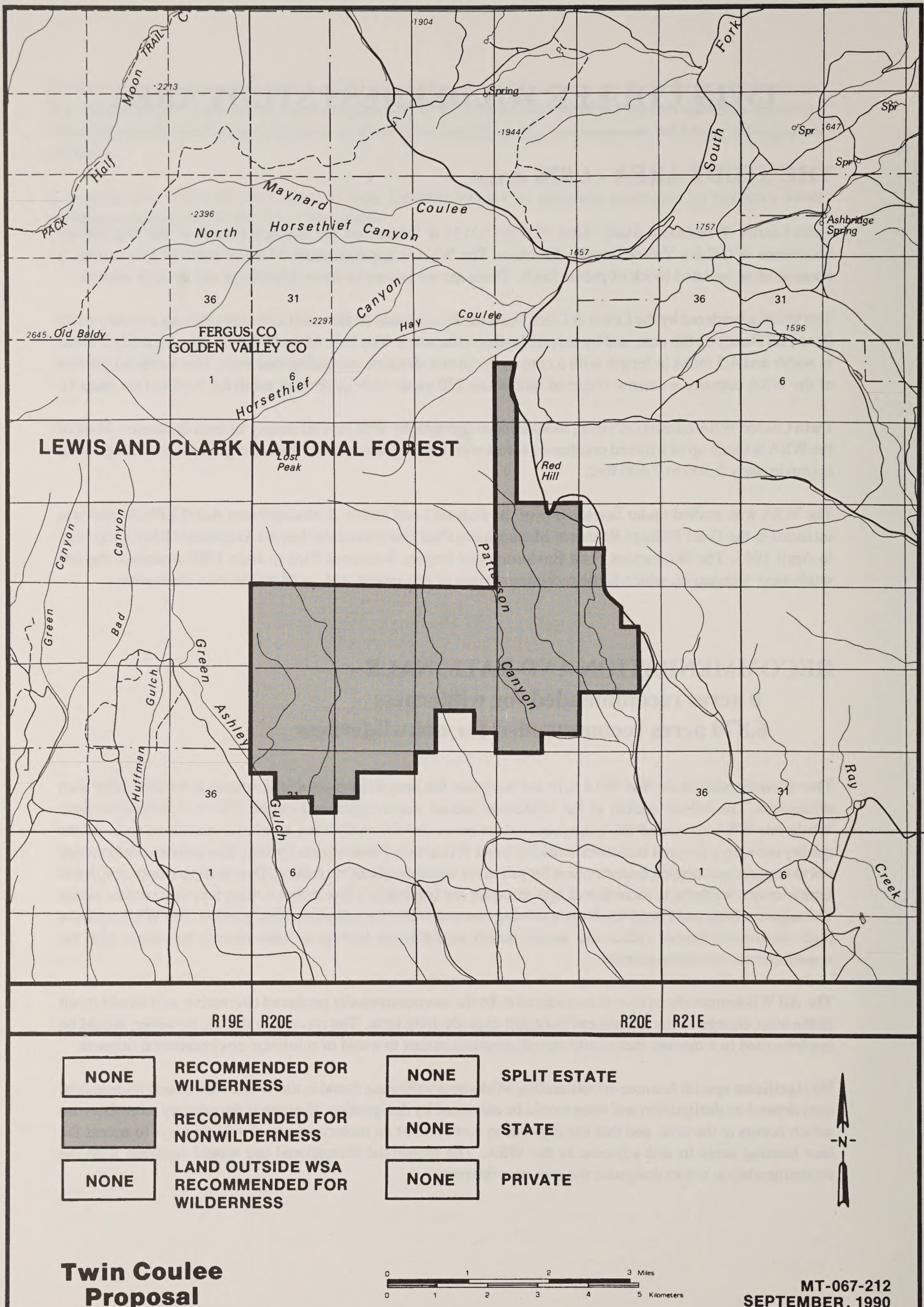
The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Draft Billings Resource Management Plan Environmental Impact Statement (RMP/EIS) filed in April 1983. The Wilderness Final Environmental Impact Statement filed in June 1988 contained the no-wilderness alternative, which is the recommendation of this report, and an all-wilderness alternative.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
6,870 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area wilderness and to release it for uses other than wilderness. The overall quality of the wilderness values was a major consideration in the recommendation. While this WSA contained the wilderness values necessary for study, they were not considered to be of the quality necessary to merit inclusion in the National Wilderness Preservation System. The area was determined not to contain outstanding opportunities for primitive and unconfined recreation. Due to steep slopes and dense timber cover, wilderness recreational opportunities are limited to a few isolated ridge tops and canyon areas. The adjacent National Forest lands are not being recommended for wilderness designation. The WSA contains high commercial timber values that would be left available for harvest at some time in the future with the nonwilderness recommendation.

The All Wilderness alternative is considered to be the environmentally preferred alternative as it would result in the least change to the natural environment over the long term. The recommendation, however, would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

No significant special features or outstanding wilderness values are found in the WSA. No existing recreational uses depend on designation and none would be enhanced by designation. Hunting is the primary recreation use which occurs in the area, and this use depends to some extent on motorized use of vehicle ways to access the best hunting areas in and adjacent to the WSA. The motorized recreational use would continue with the recommendation not to designate the area as wilderness.


LEWIS AND CLARK NATIONAL FOREST
FERGUS CO
GOLDEN VALLEY CO
PACK TRAIL
Half Moon
North Horsethief Canyon
Maynard Coulee
Hay Coulee
Canyon
Horsethief
South Fork
Spring
Spr
Ashbridge Spring
Old Baldy
Lost Peak
Red Hill
Patterson Canyon
Green Canyon
Bad Canyon
Green Gulch
Ashley Gulch
Huffman Gulch
Ray Creek
2213
1904
1944
2396
2297
2645
1647
1757
1657
1596
36
31
1
6
T12N
T11N
T10N
R19E
R20E
R21E
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
SPLIT ESTATE
STATE
PRIVATE
-N-
0
1
2
3 Miles
4
5 Kilometers

Twin Coulee Proposal

MT-067-212
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary of the Study Area

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	6,870
Split Estate (BLM-surface Only)	0
Inholdings (state, private, other)	0
Total	6,870
Within The Recommended Wilderness Boundary	
BLM (within WSA)	0
Split Estate	0
Inholdings	0
Total	0
Within The Area Not Recommended For Wilderness	
BLM	6,870
Split Estate	0
Inholdings	0
Total	6,870

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness: The major portion of the WSA is in a relatively natural condition. The area is very rugged, with several deeply incised drainages and extensive outcrops of bare limestone and sandstone. There is evidence of past post and pole cutting and a vehicle way, apparently used as a haul road, in portions of Sections 21, 27, and 28, T.11 N., R.20 E. An old road cut is visible in Section 15, T.11 N., R.20 E., but it has not been used or maintained for many years. Another vehicle way crosses BLM land in Section 10 and terminates in adjacent U.S. Forest Service land. Two miles of fence extend along the eastern and southern boundaries of the area. The overall influence of human features within the study area, as perceived by the average visitor, is negligible.

Solitude: Portions of this WSA offer outstanding opportunities for solitude. The area slopes from west to east, and dense stands of timber cover approximately 90 percent of the north-facing slopes. The area consists of six deep, timbered, parallel drainages. The major impact on solitude comes from regular traffic on the Red Hill Road, which forms the WSA's eastern boundary for approximately five miles. It is a county-maintained road connecting Lewistown with a number of dispersed ranches. This route carries a relatively large volume of traffic (59 vehicles per day according to the Montana State Highway Department), and is visible from portions of Sections 14, 15, and 23. Some ranching activity can be seen to the south, but it is located in the distance and has little impact on the area's solitude.

Primitive and Unconfined Recreation: The WSA does not offer any outstanding opportunity for primitive and unconfined recreation. The potential exists for hunting, hiking, camping, rock climbing, and nature study. However, due to the dense forest cover, steep slopes, and low numbers of wildlife, these opportunities are limited. Winter access to this area is possible by cross-country skis or snowshoes, but the steepness and heavy timber in the interior make the area impractical for most winter sports.

Special Features: Limestone outcroppings in some of the higher areas and well-defined drainages enhance the scenic quality of the area. Scenic vistas of the adjacent prairie lands to the south and the southern slopes of the Big Snowy Mountains can be obtained from some of the higher portions of the WSA, but dense stands of timber limit visibility from most points.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The WSA is located in Ecoregion 3110, subgroup 15, as determined by the Bailey-Kuchler system. At present, there are no representatives of this subgroup in the National Wilderness Preservation System. There are also two other areas presently under study in this subgroup.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Dry Domain/ Great Plains Shortgrass Prairie Province/ Eastern Ponderosa Forest	1	7,500	0	0
	MONTANA			
	0	0	2	14,090

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within five hours' driving time of three major population centers. Table 3 summarizes the number and acreage of designated and other BLM study areas within five hours' driving time of these cities.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	areas	acres	areas	acres
Billings, Montana	12	4,808,142	54	3,466,800
Great Falls, Montana	19	8,922,567	68	4,617,100
Casper, Wyoming	18	4,022,461	35	3,658,295

Balancing the geographic distribution of wilderness areas: The WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. Montana, Wyoming, and Idaho are combined into a region for this analysis. Visitors from this region have good access to central Montana and are within reasonable driving distance of any areas included in this study. Residents of these states have similar economic and social backgrounds and, presumably, similar demands for wilderness resources.

In the region, there are twenty-six wilderness areas containing 9,234,954 acres, 118 units comprising 5,911,096 acres of administratively endorsed wilderness areas, and 199 other wilderness study areas with 4,536,243 acres. Overall, the region has 19,682,293 acres in 343 areas either designated wilderness or with the potential for designation.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The WSA is manageable as wilderness. However, it would be quite difficult to maintain the integrity of the area as wilderness because of potential conflicts with motorized vehicle use along Red Hill Road, which forms the eastern boundary of the WSA. Also, steep terrain and dense timber stands would limit recreational use to the canyons extending southward and to a few open ridge tops.

The south and southwestern portions of the WSA contain 166 lode mining claims which are presently being maintained. Little exploration has ensued to date; however increased exploration could adversely impact the naturalness of the area. The adjacent National Forest lands are not being recommended for wilderness designation and the relatively small size of the areas likely to be used by recreationists in the WSA would offer marginal wilderness values. The lack of natural barriers along the southern and eastern boundaries could present management conflicts.

Energy and Mineral Resource Values

There are 166 lode mining claims which cover approximately 40 percent of the WSA. There are three existing oil and gas leases which encompass the entire WSA. The U.S. Geological Survey has assigned the area a low potential for oil and gas.

Mineral deposits in the vicinity of the WSA consist of the Heath oil shale. These shales are extensive, covering an estimated 2,700 subsurface square miles of eastern and central Montana, and they range in thickness from 160-240 feet. In this WSA, the Heath outcrops along the south and southeast flanks (Desborough, 1981). Marine shales such as the Heath are commonly rich in heavy metals, which are deposited in microscopic mineral grains. The Heath may contain anomalous values of vanadium, zinc, nickel, selenium, and molybdenum, and up to ten gallons per ton of synthetic crude oil. Accordingly, this area would be classified as having a low potential for oil shale.

Impacts On Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered: designation and nondesignation.

Table 4
Comparative Summary Of Impacts - Twin Coulee WSA

Issues	No Wilderness - Proposed Action	All-Wilderness Alternative
Impacts on Wilderness Values	Wilderness values within areas with commercial timber values would be degraded (4,612 acres). Wilderness values on the adjacent 2,258 acres would also be impacted.	Wilderness values would be protected and preserved on 6,870 acres.
Impacts on Timber Production Levels and Economics	The annual sustained yield would be 0.12 MMBF associated with harvest on 250 acres every five years. These forested lands are available for winter logging. This would result in annual revenues of $3,670 to the federal government general fund and of $15,000 to the local economy.	Wilderness designation would remove 4,612 acres of productive forested land from the allowable harvest base. A volume of 12.3 MMBF, with an annual sustained yield of 0.12 MMBF, would be forgone. The significant Value of this volume would be its role in the availability of the winter logging volume of 16 percent within the region. Also, annual revenues of $3,670 to the federal government general fund and of $15,000 to the local economy will be forgone.
Impacts on the Watershed Resource	The projected timber harvest program will increase direct runoff and erosion on 114 acres in the short term (2-3 years) and on 51 acres in the long term. Mining claim maintenance on 10 to 12 acres will have no net impacts on the watershed resource.	Elimination of any ground-disturbing activities would protect watershed values in the WSA.
Impacts on Mineral Exploration and Production	There will be no effect on mineral exploration or development on 6,870 acres. No exploration or production is anticipated due to low development potential.	Wilderness designation would preclude further exploration but would not significantly affect mineral production due to the low probability of discovery.
Impacts on Elk, Bear, Mule Deer, and Turkey Habitat and Populations	Projected timber harvest would reduce thermal cover, increase forage, create 50 miles of vegetative edge, and provide a more diverse vegetative community for mule deer, elk, black bear and turkey. Projected minerals actions would have a minimal effect on all species.	Elk, mule deer, bear and turkey habitat and population levels would be protected.

Impacts on Recreation Use	Hunting activity associated with motorized vehicle use is expected to increase from 20 to 170 visitor days annually. Nonmotorized hunting use will remain at 500 visitor days/year.	Motorized recreation use will decrease from 20 visitor days to none. Nonmotorized use of 1,480 visitor days annually will increase by 1 to 2 percent year.

Local Social and Economic Considerations

Timber products valued at $235,000 would not be available to the local economy. No significant social effects would occur as a result of wilderness designation.

If the WSA is not designated wilderness, the present resource use and management direction would continue. There would be no impact to ranch-related income and no additional timber or mineral values would be forgone.

Summary of WSA-Specific Public Comments

During the inventory phase, twenty public comments were received on the WSA and carried forward into the study phase. Eighteen comments favored wilderness designation of the area while two comments opposed such designation.

Three wilderness scoping meetings were conducted in May, 1982, before wilderness study work in the Billings Resource Area began.

The first meeting was held on May 16, 1982, in Lovell, Wyoming. Four people attended this meeting. No comments were made concerning the WSA. The second meeting was held in Billings, Montana, on May 21, 1982. Three individuals attended that meeting and no comments were made concerning the WSA. The third meeting was held in Lewistown, Montana, on May 26, 1982. One individual attended that meeting and favored designation of the WSA.

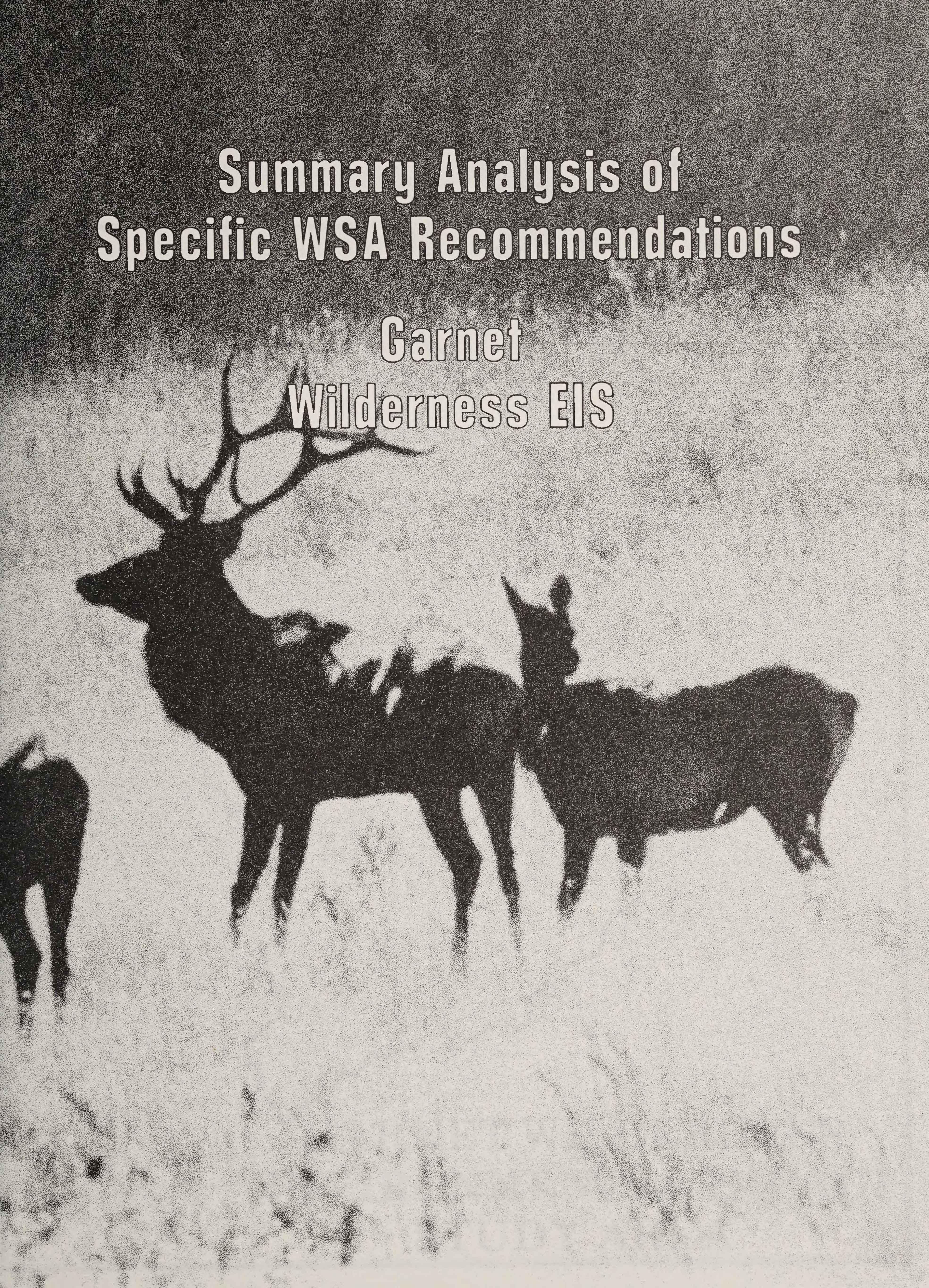
Two formal public hearings were held in Billings and Lovell during the 90-day comment period on the Draft Billings RMP/EIS. During this time, 392 comments, both oral and written, were received. Of these, eleven comments were associated with the WSA: 75 percent favored more wilderness than the proposal, eight percent supported less wilderness, and 17 percent did not express an opinion.

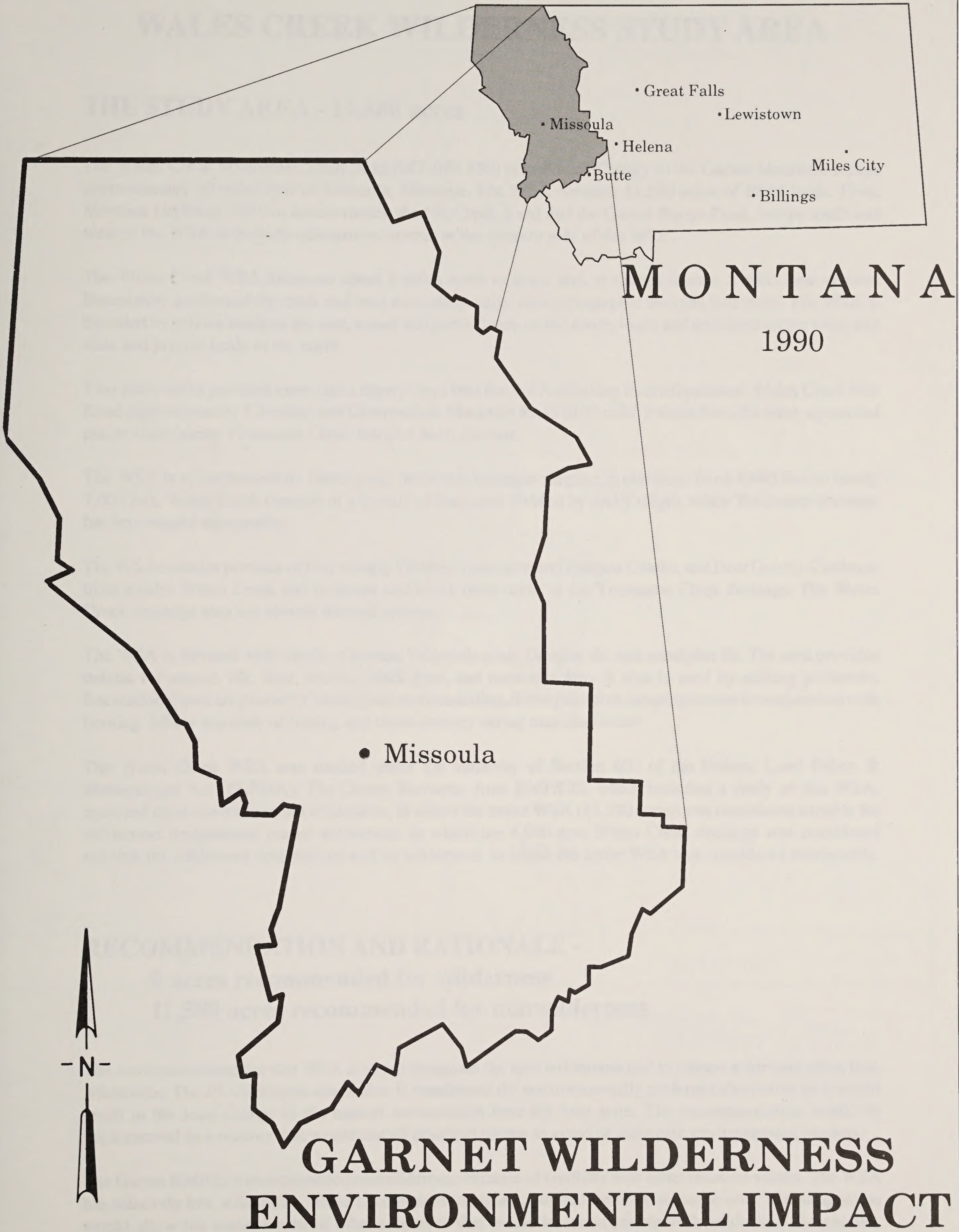
The National Park Service, U.S. Fish & Wildlife Service, Bureau of Mines, Department of the Army, Bureau of Reclamation, and Environmental Protection Agency commented on the Draft RMP but made no recommendation concerning the WSA.

Neither the State of Montana nor the Golden Valley County Commissioners made any recommendations concerning the WSA.

Summary Analysis of Specific WSA Recommendations

Garnet Wilderness EIS




Great Falls
Lewistown
Missoula
Helena
Butte
Miles City
Billings
MONTANA
1990
Missoula
-N-

GARNET WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

WALES CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 11,580 acres

The Wales Creek Wilderness Study Area (MT-074-150) is in Powell County in the Garnet Mountain Range approximately 40 miles east of Missoula, Montana. The WSA contains 11,580 acres of BLM lands. From Montana Highway 200 two access routes, the Elk Creek Road and the Garnet Range Road, merge south and west of the WSA to provide unimproved access to the western side of the WSA.

The Wales Creek WSA measures about 6 miles north to south and, at the maximum, 5 miles east to west. Boundaries are formed by roads and land ownership rather than topographic features (see map). The WSA is bounded by private lands on the east, a road and public lands on the south, roads and state land on the west, and state and private lands to the north.

Two roads and a patented mine claim cherry-stem into the WSA affecting its configuration. Wales Creek Fire Road (approximately 5.2 miles) and Chamberlain Mountain Road (0.75 mile) intrude from the west; a patented placer claim along Yourname Creek intrudes from the east.

The WSA is characterized by rather steep timbered drainages ranging in elevation from 4,680 feet to nearly 7,000 feet. Wales Creek consists of a mosaic of drainages divided by rocky ridges, while Yourname drainage has less rugged topography.

The WSA contains portions of four streams (Wales, Yourname and Pearson Creeks, and Deer Gulch). Cutthroat trout inhabit Wales Creek and cutthroat and brook trout occur in the Yourname Creek drainage. The Wales Creek drainage also has several thermal springs.

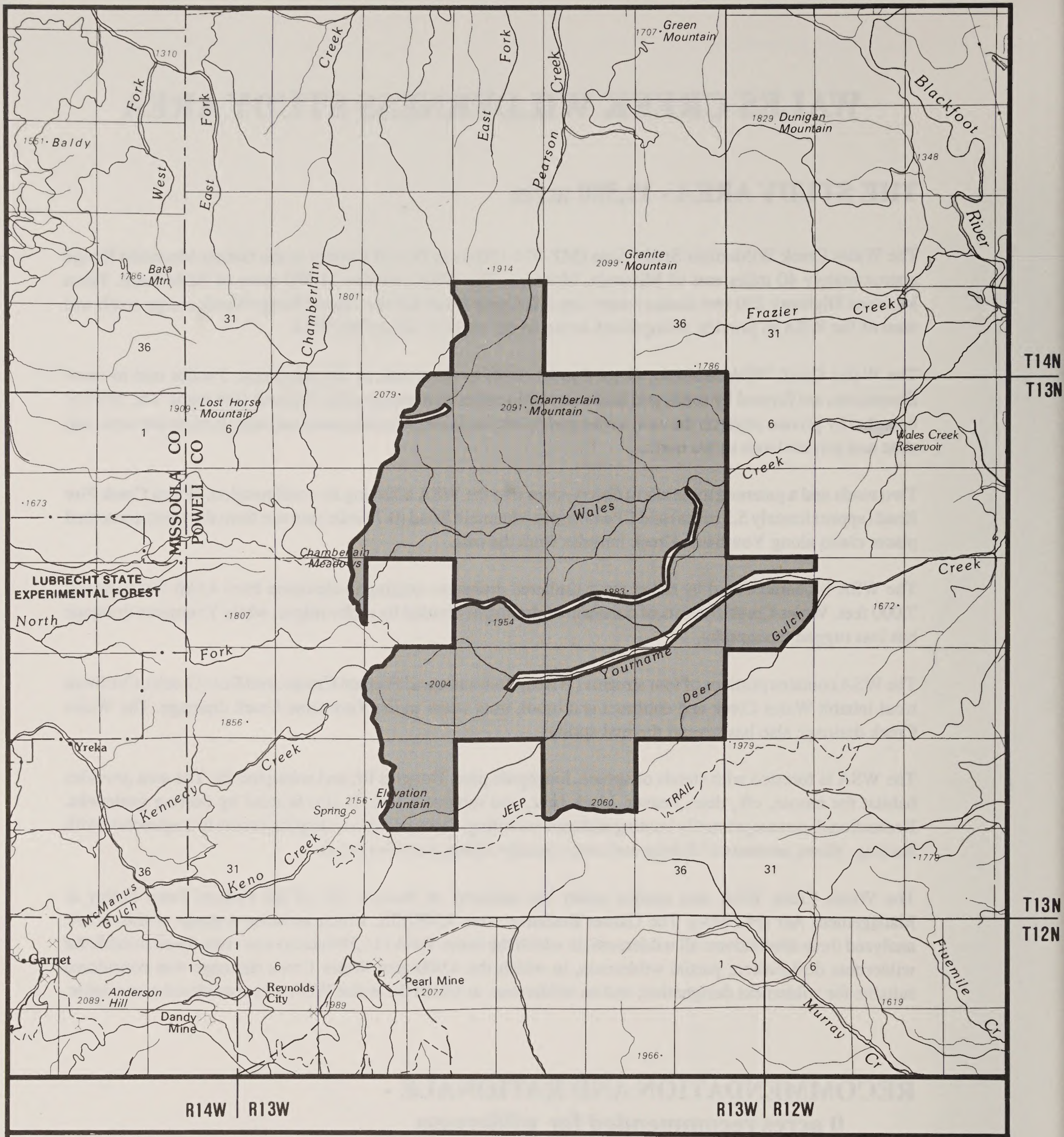
The WSA is forested with stands of spruce, lodgepole pine, Douglas fir, and subalpine fir. The area provides habitat for moose, elk, deer, beaver, black bear, and mountain lion. It also is used by nesting goshawks. Recreational uses are primarily hunting and snowmobiling. Some primitive camping occurs in conjunction with hunting. Minor amounts of fishing and cross-country skiing may also occur.

The Wales Creek WSA was studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA). The Garnet Resource Area RMP/EIS, which included a study of this WSA, analyzed three alternatives: all wilderness, in which the entire WSA (11,580 acres) was considered suitable for wilderness designation; partial wilderness, in which the 4,900-acre Wales Creek drainage was considered suitable for wilderness designation; and no wilderness, in which the entire WSA was considered nonsuitable.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
11,580 acres recommended for nonwilderness

The recommendation for this WSA is to not designate the area wilderness and to release it for uses other than wilderness. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change to the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

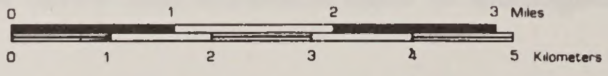
The Garnet RMP/EIS recommended nonwilderness because of conflicts with other resource values. The WSA has relatively low wilderness values as compared to higher potential for other resource uses. Nondesignation would allow the management of other resources that would be incompatible with wilderness designation,


Green Mountain
1707
Blackfoot River
Dunigan Mountain
1829
1348
1310
1551 Baldy
West Fork
East Fork
Creek
East Fork
Pearson Creek
Granite Mountain
2099
1914
Bata Mtn.
1786
1801
Chamberlain
31
36
Frazier Creek
36
31
T14N
T13N
1786
2079
Chamberlain Mountain
2091
Lost Horse Mountain
1909
1
6
1
6
Wales Creek Reservoir
Creek
MISSOULA CO
POWELL CO
1673
Wales
Chamberlain Meadows
LUBRECHT STATE EXPERIMENTAL FOREST
North Fork
1807
1983
Creek
1954
1672
Gulch
Yourname
2004
Deer
1856
Yreka
Kennedy Creek
1979
Elevation Mountain
2156
Spring
JEEP TRAIL
2060
Keno Creek
36
31
36
31
1779
McManus Gulch
T13N
T12N
Garnet
1
6
1
6
Fivemile Cr
Anderson Hill
2089
Reynolds City
Pearl Mine
2077
1989
Dandy Mine
1619
Murray Cr
1966
R14W
R13W
R13W
R12W

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

-N-

Wales Creek Proposal


0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

MT-074-150
SEPTEMBER, 1990

including exploration for placer gold and other potential minerals, wildlife habitat enhancement, motorized recreational opportunities, and timber management (94 percent of the WSA is commercial forest land).

The Garnet RMP recommended that the 4,900-acre Wales Creek drainage be managed as a special management area in which no development would occur except to improve wildlife habitat, thereby preserving fragile hydrologic resources and maintaining unroaded backcountry use and values in that drainage. The remaining 6,680 acres would be managed for their commercial forest values with an emphasis on maintaining or enhancing wildlife habitat. This management scenario was acceptable to 69 percent of the people commenting on the wilderness recommendations in the RMP.

The recommendation to not designate the area as wilderness would allow commercial timber harvest of 489 mbf annually from 6,680 acres of the WSA available for timber harvest.

The WSA also has cherry-stemmed roads on the ridge separating Wales and Yourname creeks and on the ridge separating Wales and Pearson creeks. These two long roads, which nearly split the WSA from opposite directions, would complicate wilderness management. In addition, a series of patented placer claims along Yourname Creek intrudes 3.6 miles into the WSA. Solitude and naturalness over a large portion of the WSA are impacted by the use of cherry-stemmed road and activities on adjacent, nonwilderness lands.

Except for the two road corridors, the majority of the WSA remains essentially undisturbed. The wilderness characteristics in the Wales Creek WSA are common in existing wilderness areas. Thus the quality or diversity of the National Wilderness Preservation System (NWPS) would not be enhanced by adding the Wales Creek WSA to the NWPS.

Table 1
Land Status and Acreage Summary of the Wales Creek WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	11,580
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	11,580
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	11,580
Split Estate	0
Total BLM Land Not Recommended for Wilderness	11,580
Inholdings (state, private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The Wales Creek WSA encompasses the last major unroaded drainage in the western Garnet Range, but it is surrounded by extensive logging and development.

The Wales Creek Fire Road and the Yourname Creek Road extend through the middle of the WSA (from the west and from the east, respectively), and parallel one another about a half-mile apart. These two roads are primitive but they adversely affect the wilderness experience of visitors; they effectively divide the WSA into three parts. Minor impacts include vehicle ways, traces of historic mining, and an early 1970s tree-thinning project adjacent to the western boundary road. The WSA itself, however, displays little evidence of human influence. None of the imprints, either alone or cumulatively, has an overriding effect on the naturalness of the WSA.

Solitude: The WSA is composed of two major stream drainages with bordering forested ridges. In Wales Creek, numerous side drainages, plus dense forests (lodgepole pine, spruce, Douglas fir, subalpine fir, and aspen), provide opportunities for visitors to remain separated from one another both physically and visually. Yourname Creek does not contain the high number of side drainages that Wales Creek does, but there are stands of lodgepole pine which provide a screening effect that hides visitors from one another.

From several high points, such as Chamberlain Mountain, visitors can see signs of human activities - towns, logging, mining and ranching. These sights are unavoidable from the higher points.

Vehicle traffic on the Wales Creek Fire Road and on the Yourname Creek Road, especially during autumn hunting season, is relatively light and intermittent but it does affect opportunities for solitude. It becomes more concentrated on the Wales Creek Fire Road during hunting season.

Primitive and Unconfined Recreation: The major recreation use in the WSA is big game hunting. The WSA supports a moose herd of 25 to 30 animals and an elk herd of about 200 to 300 animals. Since it is the last unroaded area in the Garnet Range, the WSA has some value for the roadless hunting experience it affords. Associated with hunting are opportunities for wildlife viewing and photography.

Some opportunities for one-day cross-country skiing trips exist but are limited because of poor winter access.

Vehicle use along perimeter roads and the cherry-stemmed roads would adversely affect recreation experiences, and most opportunities would be less than outstanding.

Special Features: At least four locations in the Wales Creek drainage contain thermal springs. Historically, these springs were used by miners from Garnet for recreational purposes. The springs are warm, but not sufficiently hot to develop as a geothermal resource.

Wildlife values are considered significant. The area provides spring/summer/fall habitat for moose, elk, and deer. The WSA is also used for nesting by goshawks, a species of special interest and concern in Montana.

Some of the WSA's old structures and remnants of mining activity may have historical significance.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Wales Creek WSA is included in the Columbia Forest Province/Douglas Fir Forest M2110/11 ecotype. There are currently nine units of the National Wilderness Preservation System in this ecotype and three more BLM WSAs of this class that are being studied for potential wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Columbia Forest Province/ Douglas fir Forest	1	1,000,038	0	0
MONTANA				
Columbia Forest Province/ Douglas fir Forest	8	175,096	3	12,071

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Missoula, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Missoula	25	8,313,760	44	447,000
Great Falls	14	4,387,934	44	447,000

Balancing the geographical distribution of wilderness areas: The designation of this WSA would not be nationally or regionally significant. There are three U.S. Forest Service-recommended areas totaling 300,000 acres in the Garnet Resource Area pending before Congress. Montana has sixteen designated wilderness areas containing 3,442,165 acres and seventeen presidentially endorsed areas containing 1,246,140 acres.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The Wales Creek WSA could be managed as wilderness, but several problems would persist. The area has an irregular configuration and poorly identified boundaries that would invite inadvertent trespass problems. In addition, vehicle access along perimeter roads and cherry-stemmed roads would adversely affect solitude and primitive recreation experiences in the area.

Mining exploration and the projected development of 2 of the 28 unpatented claims in the WSA would further complicate managing the areas as wilderness.

Due to the relatively small size and the shape of the WSA and to its location, land management activities occurring near the WSA would affect its wilderness values.

Energy and Mineral Resource Values

The GEM report dated July 1983, which included a mineral assessment for this WSA, rated the potential occurrence for metallic mineral resources as moderate to high. The WSA's southern portion is classified as highly favorable for the occurrence of metallic minerals, particularly placer gold deposits.

Twenty-eight unpatented mining claims encompassing approximately 560 acres are located in Yourname Creek drainage.

The potential for other mineral resources was classified as low to moderate in the GEM report.

Impacts on Resources

The following comparative impacts table summarizes the effects on pertinent resources for each alternative - no wilderness, all wilderness, and partial wilderness.

Table 4
Comparative Summary of Impacts - Wales Creek WSA

Issue	**No Wilderness (Proposed Action)**	**All-Wilderness Alternative**	**Partial-Wilderness Alternative**
Wilderness Values	Motor vehicles, snowmobiles, timber harvest and mining activities could impact the solitude of the entire WSA, if all activities were operating simultaneously and spatially positioned for broadest impact. However, noise from all activities would likely be intermittent rather than continuous. Motor vehicle use would be relatively light and seasonal. The 5 to 10 year intervals between timber harvest entries would further mitigate worst case effects on solitude. Visual intrusions of roads and logging could impact the perception of naturalness on an estimated 665 acres	The sounds associated with motor vehicles, snowmobiles and mining could impact the solitude of essentially all of the 11,580 acres. Motor vehicle and snowmobile impacts would be from those uses occurring adjacent to the proposed wilderness area. Those sounds would be intermittent and relatively light, thereby minimizing the actual impacts. Noise associated with the two mines projected for development would impact the solitude of the proposed wilderness. Logging of timber sales located adjacent to the proposed wilderness boundary would also impact the solitude of	Solitude, naturalness and opportunities for primitive recreation would be substantially affected by the existence and uses of boundary and cherry-stemmed roads, by timber harvest and by mining. Impacts would be expected to be very similar to those described under the Proposed Action. Supplemental values would be maintained on 4,900 acres. Moose and beaver would be adversely affected by not treating 100 acres of wet meadows on Wales Creek. Increases in elk and deer numbers would be a little less than under the Proposed Action.

	of Wales Creek Special Management Area (MA 9). Treatment of wet meadows on Wales Creek would diminish natural values on an additional 100 acres. Roads, logging and mining would impact natural values and the perception of naturalness on an estimated 6,638 acres of the area allocated by the RMP to multiple-resource management. Supplemental values would be protected on 4,900 acres. Treatment of wet meadows would influence increases in elk and deer by as much as 5 percent of the total projected increase. Opportunities for primitive and unconfined recreation would be impacted by the sounds and sights of motor vehicles, snowmobiles, timber harvest and mining. Impacts would be similar to those described for solitude and naturalness.	the area. When resource management activities are halted, opportunities for solitude would be reestablished. Visual intrusion of boundary and cherry-stemmed roads and mining would impact naturalness on an estimated 890 acres of the proposed wilderness area. Roads and other disturbances would also impact the impact the perception of naturalness on an estimated 800 acres of vistas within the proposed wilderness area. Special features (mineral licks, warm water springs, etc.) would be preserved under this alternative. Moose numbers are expected to decline with elk and deer generally remaining at or near current levels because habitat manipulations would depend on natural processes. Opportunities for primitive and unconfined recreation would be impacted similar to that described for solitude and naturalness.	
Timber Harvest	There would be no impact on timber harvest as established through the land use plan (Garnet RMP/EIS).	An annual harvest averaging 400 mbf would be lost.	Same as the Proposed Action.

Issue	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Mineral	There would be no impact.	Two of 28 existing mine claims are projected to be developed. Total area that would be impacted is estimated at 10 acres. The remainder of the area would be unavailable for exploration and development. However, the potential for finding minerals is low.	There would be no impact on developing the mineral resources of the WSA. However, the opportunity to explore and develop within the Wales Creek drainage would be foregone due to withdrawal from mineral entry.
Energy	There would be no impact.	The opportunity to explore and develop oil and gas resources would be lost on lands withdrawn from leasing. The impact of no exploration and development is projected as low because of the assumed low potential for developable amounts of oil and gas.	Same as the Wilderness Alternative.
Wildlife	Moose numbers would remain at about current levels. Elk are expected to increase by 30 percent and deer by 25 percent. The potential for beaver to reestablish on Wales Creek would be improved.	The area would provide a larger block of security habitat. Because habitat management would depend upon natural processes, moose numbers are expected to decline by as much as one half. Elk and deer would generally be at or near current levels, but would fluctuate with habitat conditions governed by natural processes. The potential for beaver reestablishing on Wales Creek would decline with a continuing deterioration of the willow component on wet meadows.	Moose numbers are expected to decline by as much as 1/2 attributed primarily to no treatment of wet meadows. Elk are projected to increase by 27 percent and deer by 22 percent. The potential for beaver reestablishment is the same as the All Wilderness Alternative.

Issue	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Recreation	Hunting use is expected to increase by 50 visitor days/year because of increases in elk and deer.	Hunting use is not expected to increase, but could decline if big game populations diminished due to declining habitat condition.	Moose hunting would decline because of reduced numbers. However, overall hunting use is projected to increase by 40 visitor days/year because of increases in elk and deer.
	Snowmobile use is expected to increase by 150 visitor days/year in response to logging operations.	There would be no snowmobile use on proposed wilderness area.	Snowmobile use would increase on the Yourname Creek area by 150 visitor days/year in response to logging operations.
	Increased hiking use is projected at 50 visitor days/year as a result of developing a foot trail system.	An increase of 150 visitor days/year is projected due to wilderness designation and development of a foot trail system. The increase represents a disperal of use from nearby, heavily-used wilderness areas.	An increase of 70 visitor days/year is projected as the result of wilderness designation and development of a foot trail system.
	Total recreation use is projected to increase by 250 visitor days/year from 430 visitor days to 680.	Total recreation use is projected at 570 visitor days/year.	Total recreation use is projected at 690 visitor days/year.
Economic	Timber management would provide 4 jobs ($100,000 in salaries) to the local economy and $20,000 annually to the U.S. Treasury. production.	Losses of 4 jobs ($100,000 in salaries) and $20,000 to the U.S. Treasury would result from withdrawing the	Benefits to the local economy and to the U.S. Treasury from timber production would be the same as with the Proposed
	The value of increased recreation use would be $7,500 annually. There would be no impact to local and regional economies resulting from the increases because that use is projected to be a dispersal of users from nearby areas rather than new use.	The value of increased recreation use would be $4,500 annually. There would be no impact to local and regional economies for the same rationale as described under the Proposed Action.	The value of increased recreation use would be $7,800 annually. There would be no impact to local and regional economies for the same rationale as described under the Proposed Action.

Issue	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Fire	Limited fire suppression would be applied to 5,180 acres. Full fire suppression would be authorized on 6,400 acres. Prescribed burning would be used for wildlife habitat improvement and on about half of the cutting units (approximately 200 acres) to dispose of slash and prepare the sites for seedling reestablishment.	Only limited fire suppression (no motorized ground equipment) would be authorized over the entire area. Prescribed burning would not be allowed.	Impacts would be similar to those described for the Proposed Action.

Local Social and Economic Considerations

Wilderness designation of the Wales Creek WSA would not be received favorably by the local populace. Many area residents would view designation as an attempt by outsiders to govern their lifestyles, which depend heavily on the availability of natural resources. They would feel that local rule would be diminished. On the other hand, the feelings of wilderness advocates and users would be bolstered.

With designation, seven jobs with total salaries of about $175,000 would be forgone in the forest product industry. A potential income of $50,000 annually to the federal treasury from oil and gas leasing and timber sales would be forgone. Designation would generate about $30,000 income annually for the local economy; one $20,000-per-year job would be created in the service industry.

Summary of WSA-Specific Public Comments

Most comments that were received during the intensive inventory phase supported further study of Wales Creek for wilderness. The majority of these comments were general and were from the local area. The public emphasized that the inventory unit was primarily natural, that it provided excellent opportunities for solitude, and that it possessed unique geological, scenic, and wildlife values. Those opposed to wilderness study cited the timber and mineral values and problems with the unit's configuration.

A total of twenty-three comments was received on the draft Garnet RMP/EIS that related to the Wales Creek WSA. Six individuals supported the proposed action for the Wales Creek WSA and five individuals supported wilderness designation. The remainder of those individuals commenting expressed no clear indication for or against wilderness designation. The majority favoring nonwilderness believed that the WSA should remain under multiple-use status and should not be excluded from potential mineral, energy, and timber development. They felt that Montana already has enough wilderness. Those favoring the all-wilderness alternative advocated the long-term preservation of natural, scenic, wildlife, and primitive recreation values in the WSA.

Comments received from Region 2 of the Montana Department of Fish, Wildlife & Parks favored wilderness consideration but not specifically for the Wales Creek WSA. The Montana Governor's office stated that consideration should be given to maintaining more of the existing unroaded wildlife security areas in the Wales Creek WSA. No comments were received from federal agencies.

HOODOO MOUNTAIN WILDERNESS STUDY AREA

THE STUDY AREA - 11,380 acres

The Hoodoo Mountain Wilderness Study Area (MT-075-151A) is located about 55 miles east of Missoula in Powell County, Montana. The study area contains 11,380 acres of BLM lands. No private, state or other federal lands are within the WSA. The boundary on the east is established by a road, while the remaining boundaries are old timber cutting units, private land and state land. (See map.)

The WSA is located along the crest of the eastern end of the Garnet Range. It measures approximately 6 miles north to south and 4 miles east to west and is quite irregular in shape. The width at one point is under three-quarters of a mile. Elevations range from 5,200 feet along Cooper Creek to 7,438 feet atop Devil Mountain. The WSA is a forested area with interspersed rock outcrops, open grassland parks, and wet meadows.

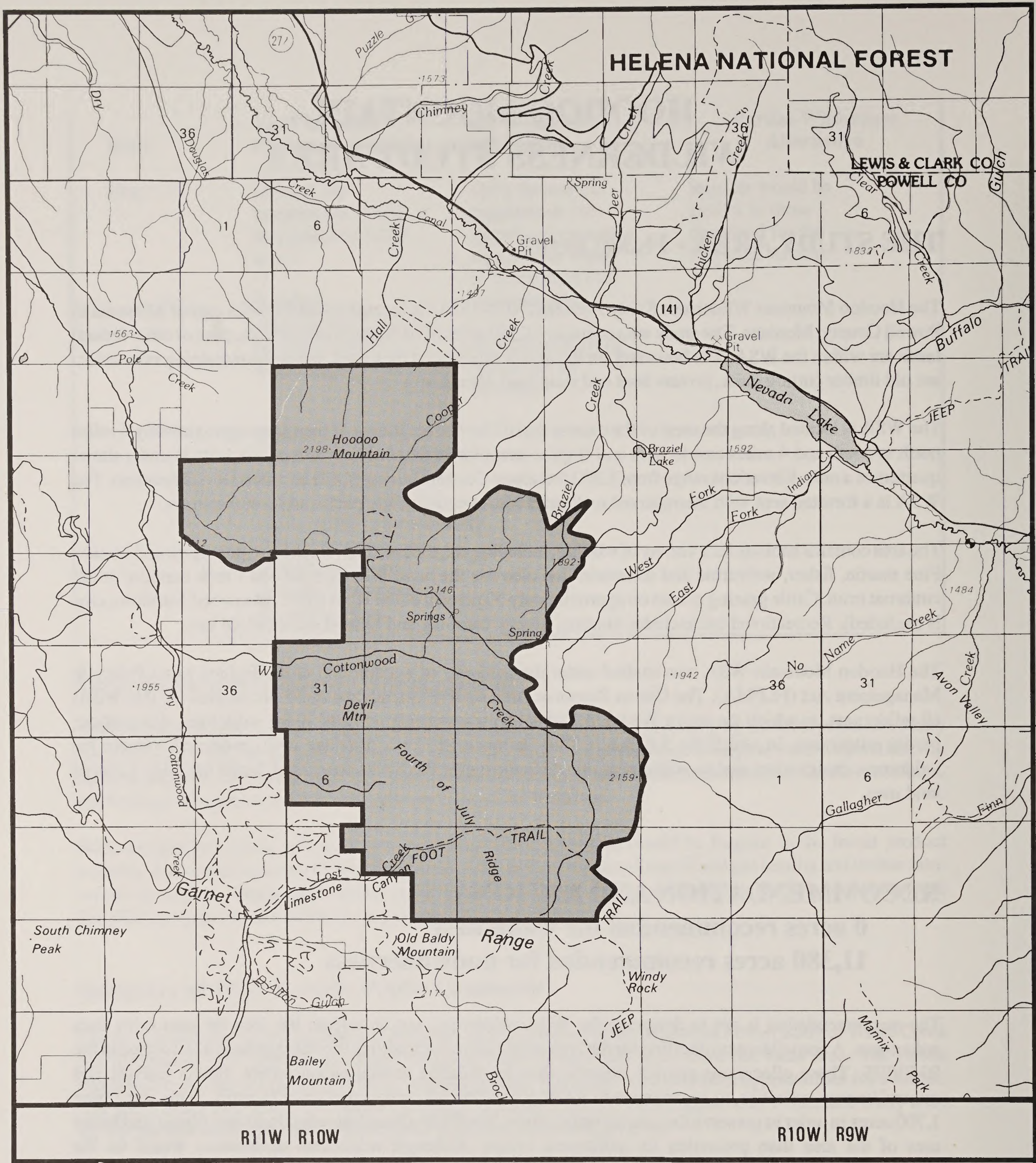
The area contains habitats for a variety of wildlife, including elk, moose, deer, black bear, porcupine and grouse. Pine martin, fisher, wolverine and mountain lion also use the area. Wet Cottonwood Creek contains small cutthroat trout. Cattle grazing occurs on approximately 50 percent of the WSA (the Cottonwood Meadows area is excluded). Recreational use includes hunting, hiking, camping and limited snowmobile use.

The Hoodoo Mountain WSA was studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA). The Garnet Resource Area RMP/EIS analyzed three alternatives for this WSA: all wilderness, in which the entire WSA (11,380 acres) was considered suitable for wilderness designation; partial wilderness, in which the 5,873-acre Wet Cottonwood Creek drainage was considered suitable for wilderness designation; and no wilderness, in which the entire WSA was considered better suited to a mix of land uses.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
11,380 acres recommended for nonwilderness

The recommendation is not to designate the WSA wilderness, and to release the area for uses other than wilderness. A nonwilderness decision for the area would allow for multiple use management as allocated in the RMP/EIS. Those allocations provide opportunities for wildlife habitat enhancement, timber harvest and mineral/energy activities on approximately 9,680 acres. Special management would apply to the remaining 1,700 acres in order to preserve the special values there. The RMP allocations are considered higher and better uses of the area than protecting its wilderness values. Although wilderness designation would be the environmentally preferred alternative (ensuring long term preservation of soils, scenic quality and primitive forms of recreation), the nonwilderness recommendation would be implemented in a manner to avoid or minimize environmental impacts.

This 11,380-acre WSA would be difficult to manage as wilderness owing primarily to its irregular configuration, which results from the private land ownership that determines the boundaries. The wilderness characteristics found in this area, while of good quality, were not determined to be of a quality or uniqueness to merit inclusion in the National Wilderness Preservation System.


HELENA NATIONAL FOREST
LEWIS & CLARK CO
POWELL CO
T13N
T12N
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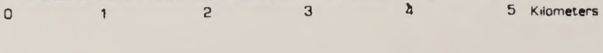
R10W
R10W
R9W
271
141
Puzzle
Chimney
Creek
Dry
Douglas
Creek
Canal
Gravel Pit
Spring
Deer
Creek
Chicken
Creek
Clear
Creek
Gulch
Buffalo
TRAIL
JEEP
Nevada Lake
Gravel Pit
Hall
Creek
Creek
Pole
Creek
Cooper
Hoodoo Mountain
2198
Braziel
Braziel Lake
1592
Indian
Fork
Fork
West
East
Creek
1892
2146
Springs
Spring
No
Name
Creek
Avon Valley
Creek
1484
1573
1563
1487
1832
1942
1955
West
Cottonwood
Dry
Devil Mtn
Creek
Cottonwood
Fourth of July
2159
Gallagher
Finn
Creek
TRAIL
Canyon Creek
FOOT
Ridge
TRAIL
Lost
Limestone
Garnet
Range
South Chimney Peak
Old Baldy Mountain
Windy Rock
2174
B. Alton Gulch
JEEP
Mannix
Park
Bailey Mountain
Brock
36
31
1
6
36
31
1
6
36
31
6
36
31
1
6

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

N

Hoodoo Mountain Proposal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MT-074-151
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary of the Hoodoo Mountain WSA

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	11,380
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	11,380
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	11,380
Split Estate	0
Total BLM Land Not Recommended for Wilderness	11,380
Inholdings (state, private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: Hoodoo Mountain appears to be natural and to have been affected primarily by the forces of nature. However, signs of past human presence include two cabins in the southern portion of the unit and a complex of vehicle ways in the central and southern portions. Livestock-grazing improvements consist of two developed springs and two fence lines. There are two undeveloped recreation sites on the eastern side of the WSA.

Solitude: The WSA has a diverse physiographic makeup consisting of forested areas, grassland parks, wet meadows, rock outcrops, and moderate slopes. These features afford natural screening, making it possible for the visitor to find secluded spots.

The WSA contains forests of Douglas fir and lodgepole pine (and some alpine fir), which provide vegetative screening. Scenic quality is enhanced by small parklands, rock outcrops and wet meadows interspersed in this generally forested vegetative type. Some perception of solitude and naturalness is afforded by the vegetative and topographic screening. However, the WSAs irregular configuration and core-to-perimeter distances (0.75 to 3 miles) limit opportunities for solitude and naturalness. Vehicle use and other activities (e.g., timber harvest) along the boundaries also impact opportunities for solitude. Also from higher vistas a visitor can see traffic on State Highway 141 and boaters on Nevada Lake. Their distance beyond the WSAs borders, however, means that most such offsite activities have little real impact on viewers in the area.

Primitive and Unconfined Recreation: Hoodoo Mountain's forested areas and intermittent open grassland parks and meadows are excellent habitats for a variety of wildlife. Because of this diversity, good opportunities exist for wildlife observation and big game hunting. Wet Cottonwood Creek offers some potential for fishing although its cutthroat trout fishery is limited in size and numbers of fish. Remnants of old trails developed by the Blackfoot Forest Protective Association (BFPA) and by past livestock herding provide some foot and horseback access in parts of the WSA. They are best defined in the vicinity of Cottonwood Meadows, Fourth of July Ridge and Lost Creek. Opportunities for day hiking, horseback riding, photography, cross-country skiing, snowshoeing and other activities are afforded on the area. Some primitive camping occurs in conjunction with hunting, and the opportunity for more exists. Even with the impact of activities adjacent to the WSA on solitude, opportunities for primitive and unconfined recreation are possible within Hoodoo Mountain WSA.

Special Features: Cottonwood Meadow is a special feature of that area that is important to elk and moose, with wallows evident in the area. The WSA is generally prime summer/fall habitat for elk.

Use of the area by wolverine and fisher is suspected. The status of wolverines is being reviewed for listing as a federal endangered species. The fisher is listed as endangered in Montana.

Remnants of foot trails made by the BFPA and past livestock herding and two old cabins may have historic value.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Hoodoo Mountain WSA is included in the Columbia Forest Province/Douglas Fir Forest M2110/11 ecotype. There are currently nine units of the National Wilderness Preservation System in this ecotype and three more BLM WSAs of this class that are being studied for potential wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
	NATIONWIDE			
Columbia Forest Province/ Douglas Fir Forest	1	100,038	0	0
	MONTANA			
Columbia Forest Province/ Douglas Fir Forest	8	175,096	3	12,271

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Missoula and Great Falls. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a one-day drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Missoula	25	8,313,760	44	447,000
Billings	14	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: Designation of this WSA would not be nationally or regionally significant. Montana has sixteen designated wilderness areas containing 3,442,165 acres and seventeen presidentially endorsed areas containing 1,246,140 acres.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The Hoodoo Mountain WSA could be managed as wilderness, but doing so would be difficult due to the unit's irregular configuration and because poorly identifiable boundaries make inadvertent trespass a problem. In addition, vehicle access along roads and timber harvest and other development type activities adjacent or near the boundaries would have substantial adverse affects on the area's ability to provide solitude and primitive recreation.

Energy and Mineral Resource Values

Energy and mineral resource values for the area were evaluated in a GEM report dated July 1983. The potential for finding oil and gas is low; the potential for metallic minerals is low to moderate. Much of the area is covered by extrusive volcanics, which make mineral-resource assessment difficult. The chances of discovering developable (paying) quantities are low. Two unpatented mining claims filed in the Braziel Creek drainage were both abandoned by 1988.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for each alternative - no wilderness, all wilderness, and partial wilderness.

Table 4
Comparative Summary of Impacts - Hoodoo Mountain WSA

Issues	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Wilderness Values	At worst case, the solitude of the entire 11,380-acre WSA could be impacted by motor vehicles, snowmobiles, timber harvest and minerals exploration. This assumes all sources of noise operating simultaneously and spatially arranged to produce the maximum impact. Actually, all sources of noise would be operating intermittently rather than continuously. Motor vehicle use would be light and seasonal (primarily during hunting season). Snowmobile use would be seasonal, occurring when other uses are low. Logging would be seasonal, and the 5 to 10 year interval between harvest entries would mitigate worst case effects.	Solitude, naturalness and opportunities for primitive and unconfined recreation would be protected on essentially all 11,380 acres. Sounds of motor vehicles and snowmobiles could impact as much as 3,200 acres along the eastern boundary of the proposed wilderness area. Typically the noise effects would be intermittent and infrequent. Visual intrusions of outside developments and activities would impact an estimated 180 acres along the eastern boundary and parts of approximately 600 acres of vistas within the proposed wilderness area. Supplemental values would be protected from resource management activities.	Motor vehicles, snowmobiles and resource management activities could impact the entire 11,380-acre WSA. Most likely, however, noise impacts would be intermittent and infrequent because of the projected low levels of uses and their seasonal occurrences. Projected activities and developments would impact the perception of naturalness on an estimated 745 acres of the proposed wilderness area and an estimated 959 acres of the area recommended for nonwilderness. Supplemental values and security habitat will be preserved on 5,870 acres (proposed for wilderness). Elk and deer would respond favorably to forage openings (clearcuts) produced by logging on the area proposed for nonwilderness.
	Timber harvest (primarily), roads and mineral exploration would impact the natural values and perception of naturalness on an estimated 1,753 acres of the WSA. These visual intrusions would impact 585 acres of the Wet Cottonwood Creek Special Management Area and 1,169 acres of the area proposed for multiple uses.	Primitive and unconfined recreation would be affected by outside activities and developments similar to that described for solitude and naturalness.	Generally opportunities for primitive recreation would be preserved on the area recommended for wilderness. However, the sights and sounds of developments and activities would affect primitive and unconfined recreation much the same as described for solitude and naturalness.

	Supplemental values would be preserved on 1,700 acres. Treatment of wet meadows would maintain forage areas for moose, elk and deer and could influence the total increase in big game numbers by as much as 10 percent. Opportunities for primitive recreation would be impacted similar to that described for solitude and naturalness.		
Timber Harvest	There would be no impact on timber harvest as established through the land use plan (Garnet RMP/EIS).	Approximately 8,000 acres of CFL would be lost to timber production. An annual harvest averaging 430 mbf would be foregone.	Commercial Forest Land (CFL) available for timber production would be reduced by 3,500 acres. Annual harvest would be reduced from an average of 430 mbf to 250 mbf.
Mineral	There would be no impact. No exploration or development is expected.	There would be no impact on developing the WSAs oil and gas resources.	There would be no predicted impact on mineral exploration and development.
Energy	There would be no impact. No exploration or development is expected.	There would be no impact on developing the WSAs oil and gas resources.	There would be no foreseeable impact on oil and gas exploration and development.
Wildlife	Moose numbers could nearly double to between 10 and 20 animals (attributed partially to habitat improvement and partially to natural range expansion). Elk are projected to increase by 30 percent and deer by 40 percent.	Moose, elk and deer are predicted to remain relatively unchanged; although, moose might increase slightly due to natural range extension.	Moose numbers are expected to increase, perhaps as much as double (due largely to natural range expansion). Elk are projected to increase by 25 percent and deer by 35 percent.

Issues	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Recreation	Hunting use is projected to increase by 30 visitor days/year as a response to increases in elk and deer numbers. Snowmobile use is projected to increase by 100 snowmobile visitor days/year in response to logging. Hiking use is predicted to increase by 20 visitor days/year as the result of developing a foot trail system. Total recreation use is predicted to increase by 150 visitor days/year from 215 visitor days to 365.	Hunting use is not expected to increase. Snowmobile use on the WSA (current and projected) would be lost. An increase of 100 visitor days/year is projected due to wilderness designation and development of a foot trail system. The increase represents dispersal of use from nearby, heavily-used wilderness areas rather than new visitors. Total recreation use is projected at 300 visitor days/year.	Hunting use is projected to increase by 20 visitor days/year as a response to increases in elk and deer. Snowmobile use is projected to increase by 100 snowmobile visitor days/year in response to logging. An increase of 50 visitor days/year is projected in response to wilderness designation and a developed foot trail system. Total recreation use is projected at 370 visitor days/year.
Economic	Timber management would provide 4 jobs ($100,000 in salaries) to the local economy and $21,500 to the U.S. Treasury. Increased recreation use would be valued at $4,500 annually. Total recreation use would be valued at $10,950. There would be no impact to regional and local economies since increased use would be a dispersal from other local areas rather than new use.	An estimated 4 jobs with $100,000 in salaries would be lost to the local economy if the WSA was withdrawn from timber production. Designation would cost the U.S. Treasury about $21,500. Increased recreation use would be valued at $3,000 annually. Total recreation use would be valued at $9,000. There would be no impact to regional and local economies since increased use would be a dispersal from other local areas rather than new use.	An estimated 1.5 jobs and $37,500 in salaries (timber related) would be lost to the local economy. Approximately $9,000 in annual timber sale receipts would be lost to the U.S. Treasury. Increased recreation use would be valued at $5,100 annually. Total recreation use would be valued at $11,100. There would be no impact to regional and local economies since increased use would be a dispersal from other local areas rather than new use.

Issues	No Wilderness (Proposed Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Fire	Limited fire suppression would be applied to 2,000 acres. Full fire suppression would be used on the remaining 9,380 acres. Prescribed burning would be used on about 1/3 of the cutting units (approximately 140 acres) to reduce slash and prepare the site for seedling reestablishment.	Only limited fire suppression (no motorized ground equipment) would be authorized. Prescribed burning would not be used.	Limited fire suppression would be applied to 6,170 acres. Full fire suppression would be authorized on 5,210 acres. Prescribed burning would be used on slopes greater than 40 percent to remove slash and prepare logged sites for reforestation.

Local Social and Economic Considerations

Wilderness designation would not be received favorably by the local populace. Residents would view designation as an attempt by outsiders to govern their lifestyles, which to a considerable extent depend on the availability of natural resources. Some individuals' sense of local rule would be diminished. The feelings of wilderness advocates and recreation users, on the other hand, would be bolstered.

With wilderness designation, four jobs with total salaries of about $100,000 would be forgone in the forest products industry. A potential income of $21,500 annually to the federal treasury from timber sales also would be forgone. Recreation use under wilderness designation would be valued at about $9,000 annually, which is less than the other two alternatives.

Summary of WSA-Specific Public Comments

Most comments received during the intensive inventory phase supported further study of the Hoodoo Mountain WSA for wilderness. The majority of these comments were general and from the local area. The public emphasized that the unit was primarily natural, providing opportunities for solitude, and that it possessed unique geological, scenic, and wildlife values. Those opposed to wilderness study cited the valuable timber resources and problems with the unit's configuration, along with a present abundance of wilderness.

Of the comments received on the Draft RMP/EIS, twenty-two related to the Hoodoo Mountain WSA. Two people supported nonwilderness for the WSA and six supported wilderness. Seven people expressed a general desire for no more wilderness designation. The majority favoring nonwilderness believed that the WSA should remain under multiple-use management and not be excluded from mineral, energy, and timber development. Most individuals stated that there was already enough wilderness in Montana. Six people expressed support for the preferred alternative which recommended that 1,700 acres be maintained in a semi-wild, natural condition. Those favoring all wilderness advocated long-term preservation of the area's natural, scenic, wildlife, and primitive recreation values.

Comments from Region 2 of the Montana Department of Fish, Wildlife & Parks outlined a general desire for wilderness consideration, but made no specific mention of the Hoodoo Mountain WSA. Comments were also received from the Montana Governor's office stating that consideration should be given to maintaining more of the existing unroaded wildlife security areas in the Hoodoo Mountain area. No comments were received from federal agencies.

[illegible]

Local Social and Economic Considerations

[illegible]

[illegible]

Summary of [illegible] Considerations

[illegible]

[illegible]

[illegible]

QUIGG WEST WILDERNESS STUDY AREA

THE STUDY AREA - 520 acres

The Quigg West Wilderness Study Area (MT-074-155) is located in Granite County, Montana, approximately 20 miles west of Philipsburg and 40 miles southeast of Missoula. All 520 acres of the WSA are in public ownership. (See Table 1).

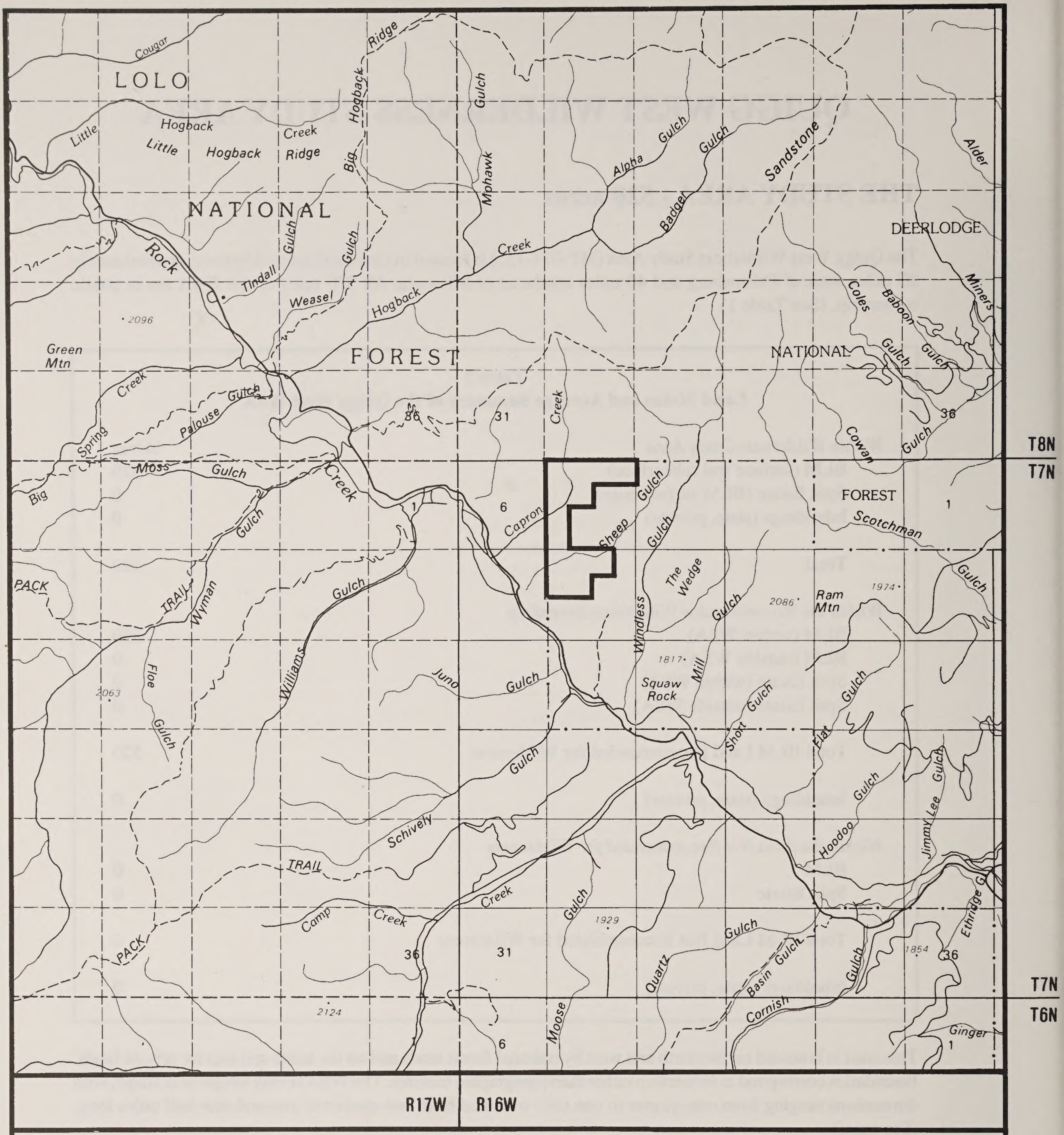
Table 1
Land Status and Acreage Summary of the Quigg West WSA

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	520
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	520
Within the Recommended Wilderness Boundary	
BLM (within WSA)	520
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	520
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	0
Split Estate	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings (state, private)	0

This tract is bounded on the north and west by national forest lands and on the south and east by private lands. Boundaries correspond to ownership rather than topographic features. The WSA is very irregular in shape, with dimensions ranging from one-quarter to one mile wide and from one-quarter to one-and-one-half miles long. (See map.)

The WSA is located in the Rock Creek drainage and contains two narrow, steep drainages, Capron Creek and Sheep Gulch. Elevations range from 4,920 feet to 6,930 feet with gradients averaging close to 60 percent. Forested ridges blend into grass and talus slopes. The abrupt slopes and the heavy vegetation along ridges and on creek bottoms make vehicle and foot travel difficult. The area provides yearlong habitat for bighorn sheep as well as habitat for elk and mule deer. Domestic livestock grazing is not authorized, and recreational use consists primarily of hunting and wildlife photography.

The Quigg West WSA was studied under the authority of Section 202 of the Federal Land Policy & Management Act (FLPMA) as part of the Garnet Resource Area RMP/EIS. Two alternatives were analyzed for this WSA:


LOLO
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Little
Hogback
Little
Hogback
Creek
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Gulch
Mohawk
Alpha
Gulch
Badger
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Alder
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Creek
Coles
Baboon
Gulch
Gulch
Miners
Green Mtn
2096
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Palouse
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Cowan
Gulch
Capron
Sheep
Gulch
Gulch
Scotchman
Gulch
PACK
TRAIL
Wyman
Gulch
Williams
Floe
Gulch
2063
Juno
Gulch
The Wedge
Gulch
Windless
2086
Ram Mtn
1974
1817
Squaw Rock
Mill
Short
Gulch
Flat
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Gulch
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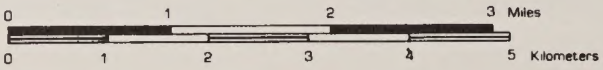
TRAIL
PACK
Camp
Creek
Creek
Gulch
Hoodoo
Gulch
Jimmy Lee
Gulch
Ethridge G
1929
Quartz
Gulch
Basin
Gulch
Gulch
Cornish
1854
Moose
2124
Ginger
36
31
6
1
36
31
36
1
6
1
T8N
T7N
T7N
T6N
R17W
R16W

	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
NONE	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

-N-

Quigg West Proposal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MT-074-155
SEPTEMBER, 1990

all wilderness, in which the entire 520-acre area was considered suitable as a tack-on to the Forest Service Quigg (Slide Rock) RARE II area and no wilderness, in which the entire WSA was considered nonsuitable. Under the no-wilderness alternative, the area would be managed as a special management area as provided for in Garnet Resource Management Plan.

RECOMMENDATION AND RATIONALE -

520 acres recommended for wilderness
0 acres recommended for nonwilderness

The recommendation is to designate the entire WSA wilderness. This is the environmentally preferred alternative. The all-wilderness recommendation is contingent on designation of the adjacent Forest Service Quigg RARE II area (#1807) as wilderness. If designation of the adjacent area does not occur, the WSA is recommended for nonwilderness and would become a special management area instead.

The recommendation is based on the fact that the WSA contains outstanding wilderness attributes of solitude and naturalness and also contains important wildlife habitat in conjunction with adjacent U.S. Forest Service lands. The tract complements adjacent lands, but is not large enough to stand on its own as wilderness. There was also strong public support for wilderness designation from those individuals who commented on the wilderness portion of the Garnet RMP.

The area is rugged and remote and development of the area is not proposed under any management scenario.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: Quigg West is completely natural in character with human impacts, past or present, unnoticeable. The only human imprints on the landscape are two footpaths, one in each of the two drainages which have been created as much by game animals as by human traffic. The WSA as a whole appears untouched by humans and is in a totally natural state.

Solitude: The topography and vegetative cover of Quigg West enhance opportunities for solitude. Two drainages, Capron Creek and Sheep Gulch, transect the tract. The steep side slopes contain coniferous forest cover interspersed with open parklands and talus areas. The tops of the ridges and drainage slopes are primarily Douglas fir forest. The boundaries are irregular, following public ownership boundaries. Core-to-perimeter distances are as little as 220 yards and as much as three-fourths of a mile.

In conjunction with the Forest Service's RARE II unit, Quigg West offers outstanding opportunities for solitude. The steep slopes of the two drainages restrict visibility to the user's immediate area. On the ridges, vegetation is thick enough to limit a visitor's ability to see other users. The drainages are densely vegetated and winding, so individuals are effectively isolated from one another.

The Quigg West tract is too small to supply outstanding solitude by itself, however. Its value lies in the enhanced solitude and varied terrain it offers users of the adjoining Forest Service Quigg RARE II area.

Primitive and unconfined recreation: Quigg West offers opportunities for primitive or unconfined types of recreation. Because of the steep topography, however, travel by foot or horseback is difficult. Dense vegetation in the drainages further impedes travel. Opportunities exist for hiking, backpacking, and hunting, but they are less than outstanding, primarily due to limited access.

Special features: Quigg West provides important yearlong range for bighorn sheep as well as seasonal habitat for elk and mule deer.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is included in the Rocky/Mountain Forest Province/Douglas fir Forest M3110/11 ecotype. There are currently seventeen wilderness areas of this ecotype in the National Wilderness Preservation System and twenty-three other BLM WSAs of this class being considered for possible wilderness designation. See Table 2.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Rocky Mountain Forest Province/ Douglas fir Forest	14	61,046,482	12	98,328
MONTANA				
Rocky Mountain Forest Province/ Douglas fir Forest	3	142,874	11	101,052

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Missoula and Great Falls. Table 3 summarizes the number and acreage of designated areas and other BLM study areas with a one-day drive of these population centers.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Missoula	25	8,313,760	44	447,000
Great Falls	14	4,387,934	44	447,000

Balancing the geographic distribution of wilderness: Designation of this WSA would not be nationally or regionally significant. Montana has sixteen designated wilderness areas containing 3,442,165 acres and seventeen presidentially endorsed areas containing 1,246,140 acres.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The WSA could be managed as wilderness by itself but doing so would be difficult due to the unit's irregular configuration and small size. Wilderness management would best be achieved in conjunction with the adjacent U.S. Forest Service Quigg area.

Energy and Mineral Resource Values

A mineral resource survey of the WSA was made by the U.S. Geological Survey and Bureau of Mines in 1986-1987. The southern part of the WSA has a moderate resource potential for gold and molybdenum; the remainder of the area has a low potential for deposits of this type. The northwestern part of the WSA has a moderate potential for copper and silver, while the remainder of the area has a low potential for copper and silver. Two small areas of gravel in the southern part of the WSA have a low potential for placer gold and sapphires. The entire area has no potential for oil and gas.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for both alternatives - designation or nondesignation of the entire Quigg West WSA as wilderness.

Table 4
Comparative Summary of Impacts - Quigg West WSA

Issue	**Proposed Action (All Wilderness)**	**No-Wilderness Alternative**
Wilderness Values	Wilderness values would be protected on the entire 520 acres.	Wilderness values would be preserved by administrative decision in the Garnet RMP/EIS.
Timber Harvest	Timber harvest would be precluded by legislative action.	No impact, the WSA is withdrawn from timber production by administrative action.
Mineral	Wilderness designation would have no adverse impact on the development of mineral resources on the WSA in foreseeable future.	There would be no impact predicted on oil and gas leasing and exploration.
Energy	There would be no adverse effects on developing the oil and gas resources of the WSA in the foreseeable future.	There would be no impact predicted on oil and gas leasing and exploration.
Wildlife	There would be no adverse effects on big game or other wildlife species.	Big game habitats would be preserved by administrative action and numbers would probably remain at or near current levels.

Recreation	As a wilderness tack-on visitor use could double, going from the estimated current use of 25 visitor days/year to 50.	No use of the WSA by motor vehicles and snowmobiles is expected to continue. However, visitor use could be expected to increase by 10 visitor days/year because of a growing national demand for primitive recreation.
Economic	Withdrawing the WSA from timber production would cost the local economy the potential for a part-time job with $3,500 in salary. The U.S. Treasury would lose the potential of $750 in annual timber sales receipts. Increased recreation use would be valued at an estimated $750 annually. Total recreation use would be valued at $1,500.	Impacts on timber related incomes would be the same as described under the Proposed Action. Increased recreation use would be valued at an estimated $300 annually. Total recreation use would be valued at an estimated $1,050.
Fire	Only limited fire suppression would be authorized. Prescribed burning would not be used.	Only limited fire suppression is authorized under administrative decision.

Local Social and Economic Considerations

The designation of Quigg West alone would not have a significant impact on the social attitudes of wilderness or nonwilderness proponents. In conjunction with the adjacent Forest Service tract, however, local attitudes could be affected. The local populace feels that any loss of natural resources might present possible changes to their life-styles. On the other hand, wilderness advocates' attitudes would be bolstered.

Less than one job would be forgone in the forest products industry. A potential income of $12,700 annually to the federal treasury from oil and gas leasing and timber sales would be forgone. The income to the local economy from recreation use would be about $1,500 annually.

Summary of WSA-Specific Public Comments

Most comments received during the intensive inventory phase supported further study for wilderness. The majority of these comments were general and from the local area. The public emphasized that the inventory unit was primarily natural, that it provided excellent opportunities for solitude, and that it possessed unique recreation, scenic, and wildlife values. Supporters cited old-growth timber stands, bighorn sheep populations, wildlife protection, and enhancement of values on the adjacent Forest Service unit as reasons to designate Quigg West as wilderness. Those opposed to wilderness designation cited problems with the unit's configuration and an existing abundance of wilderness.

A total of twenty-one comments was received on the Draft RMP/EIS that related specifically to the Quigg West WSA. Five people supported wilderness for Quigg West and none supported the no-wilderness alternative.

Seven people expressed a general desire for no more wilderness, three expressed general support for wilderness, and six supported the preferred alternative which recommended wilderness designation.

A comment was received from Region 2 of the Montana Department of Fish, Wildlife & Parks stating a general desire to keep existing unroaded lands in their present condition. No comments were received from federal agencies.

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Social and Economic Considerations

[illegible]

[illegible]

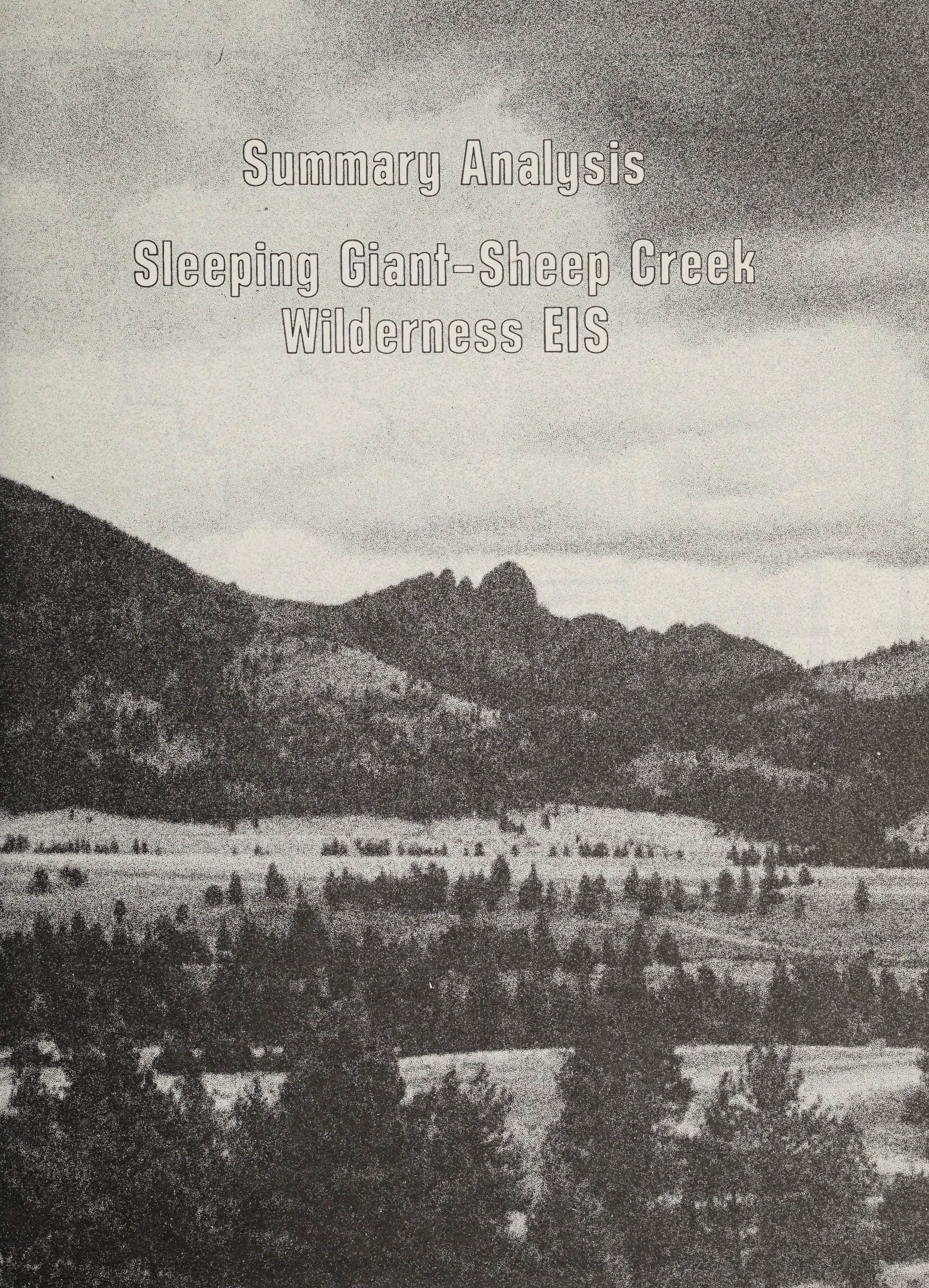
[illegible]

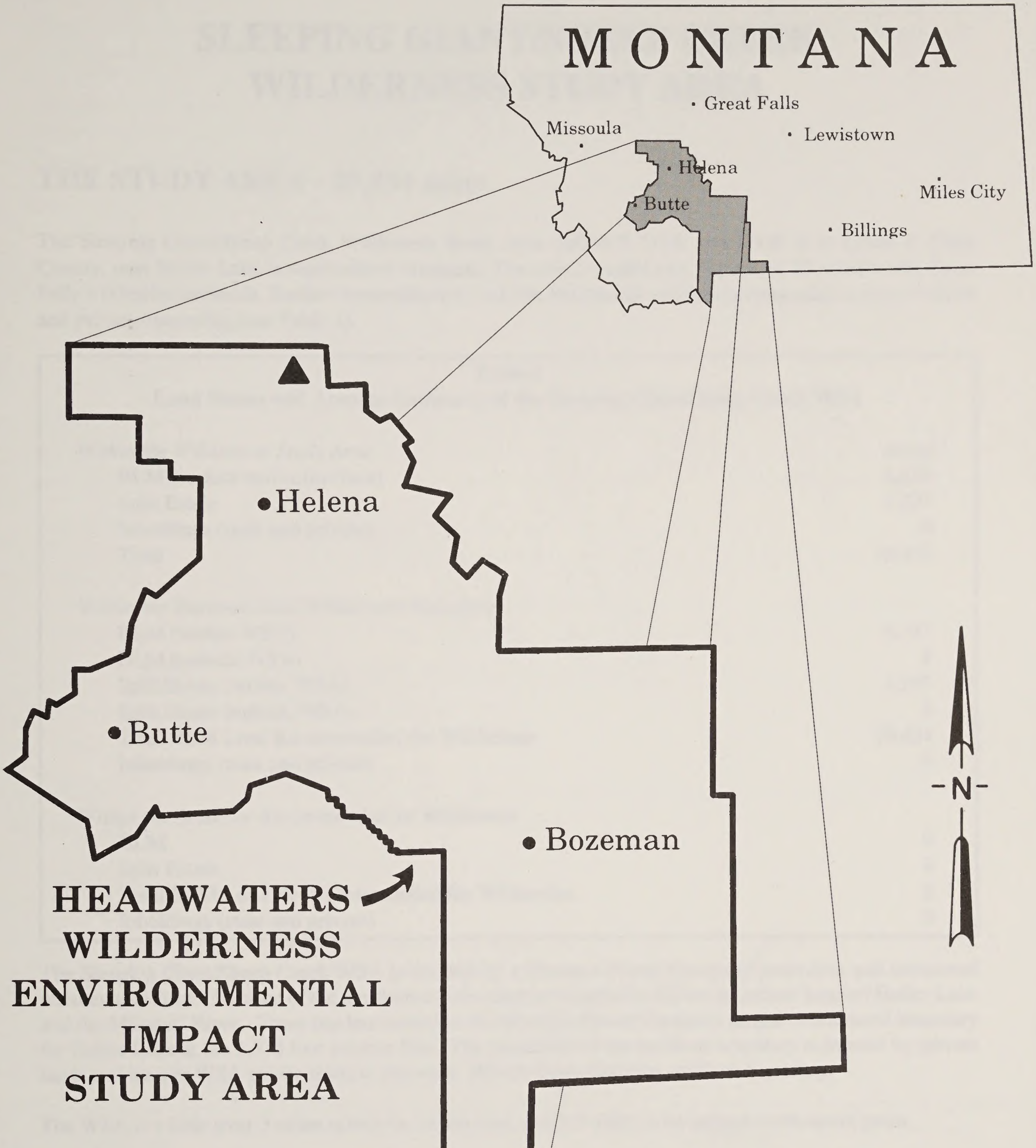
[illegible]

[illegible]

Summary Analysis

Sleeping Giant–Sheep Creek Wilderness EIS




MONTANA
Great Falls
Missoula
Lewistown
Helena
Butte
Miles City
Billings
Helena
Butte
Bozeman
HEADWATERS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA
N

SLEEPING GIANT WILDERNESS STUDY AREA

SLEEPING GIANT/SHEEP CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 10,454 acres

The Sleeping Giant/Sheep Creek Wilderness Study Area (MT-075-111A and 111B) is in Lewis & Clark County, near Holter Lake in west-central Montana. The state's capital city, Helena, is 30 miles south; Great Falls is 60 miles northeast. Surface ownership is entirely BLM while the subsurface ownership is mixed federal and private ownership (see Table 1).

Table 1
Land Status and Acreage Summary of the Sleeping Giant/Sheep Creek WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	6,127
Split Estate	4,327
Inholdings (state and private)	0
Total	10,454
Within the Recommended Wilderness Boundary	
BLM (within WSA)	6,127
BLM (outside WSA)	0
Split Estate (within WSA)	4,327
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	10,454
Inholdings (state and private)	0
Within the Area Not Recommended for Wilderness	
BLM	0
Split Estate	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings (state and private)	0

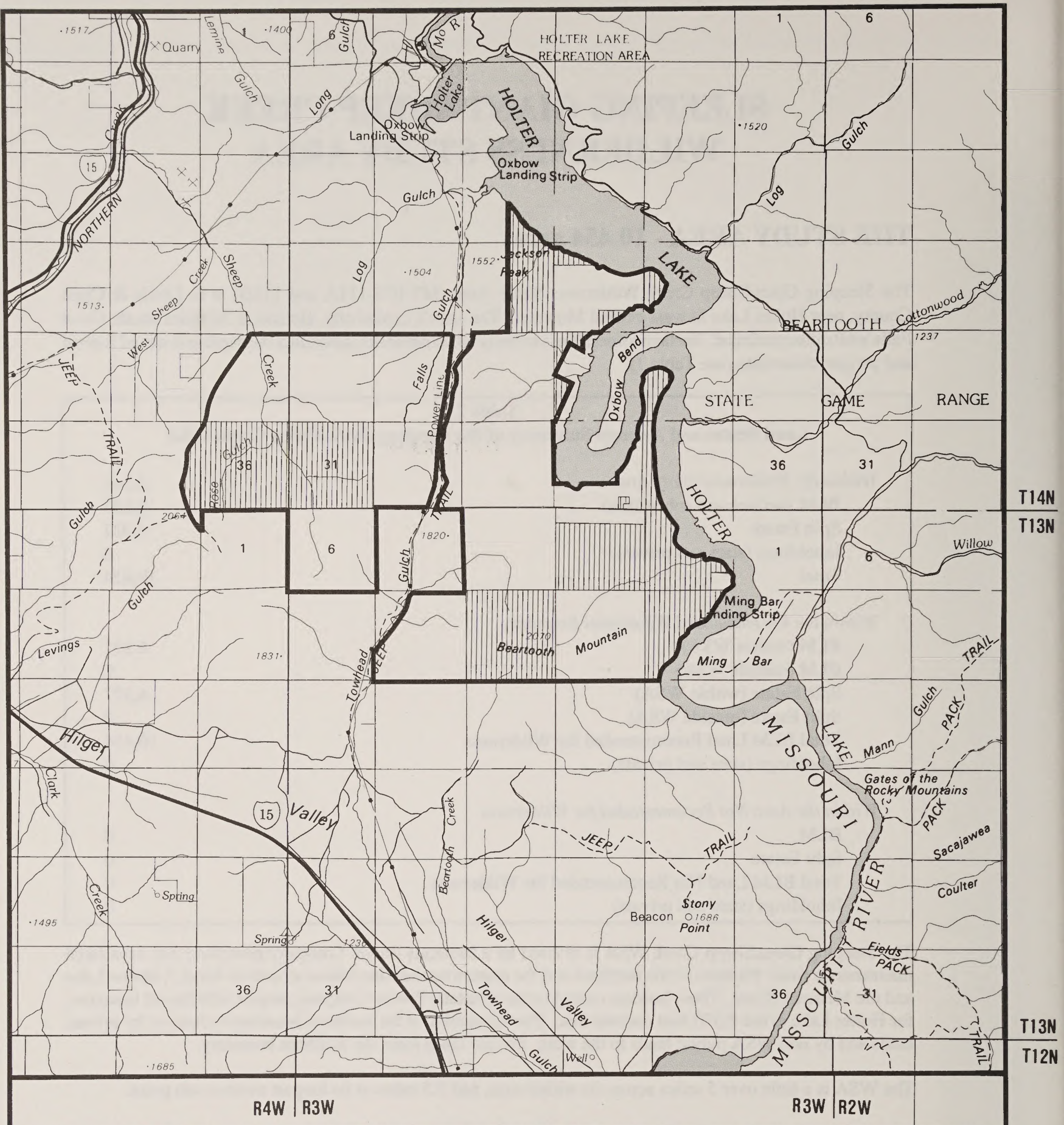
The Sleeping Giant/Sheep Creek WSA is divided by a Montana Power Company powerline and associated maintenance road. Portions of the northern and the eastern boundaries follow an oxbow bend of Holter Lake and the Missouri River. These borders extend to the Montana Power Company project withdrawal boundary for Holter Lake at the 3,570 foot contour line. The remainder of the northern boundary is formed by private lands and by non WSA public lands to the west. Private lands form the southern boundary.

The WSA is a little over 5 miles across its widest axis, and 5.5 miles at its longest north-south point.

The Sleeping Giant/Sheep Creek WSA is named for a prominent geological formation that resembles a reclining human figure. This feature, formed by the profile of Beartooth Mountain and lower-elevation rock outcroppings, is in the southern portion of the WSA and is visible from Helena.

The topography of the area is steep and irregular, with elevations ranging from 3,600 feet along Holter Lake to 6,792 feet at the peak of Beartooth Mountain. Approximately 50 percent of the area is forested with ponderosa, limber and lodgepole pine, cottonwoods, and Douglas fir trees. The remaining landscape is characterized by sedimentary rock ledges, talus slopes, and native grasslands consisting primarily of bluebunch wheatgrass, Idaho fescue and forbs.

Lower elevations are composed of numerous steep and narrow valleys. These lands drain into Holter Lake to the east, into Sheep Creek, Towhead, Rose and Falls Gulches to the west, and into Beartooth Creek to the south.



HOLTER LAKE RECREATION AREA
Quarry
Lemine Gulch
Gulch
Mo R
Holter Lake
HOLTER LAKE
Oxbow Landing Strip
Long Gulch
Log Gulch
Creek
15
NORTHERN
Sheep Creek
West Sheep Creek
JEEP TRAIL
Jackson Peak
1552
1504
1517
1400
1520
1513
Falls Gulch
Power Line
TRAIL
Oxbow Bend
BEARTOOTH STATE GAME RANGE
Cottonwood
1237
Gulch
36
31
1
6
Goose Gulch
2064
1820
HOLTER
Willow
Ming Bar Landing Strip
Ming Bar
2070
Beartooth Mountain
Levings
1831
Towhead
JEEP
Hilger
Clark
Valley
LAKE
MISSOURI RIVER
Mann
Gates of the Rocky Mountains
PACK TRAIL
Sacajawea
Coulter
Beartooth Creek
JEEP TRAIL
Stony Point
Beacon
1686
Spring
1495
1238
Hilger
Towhead Gulch
Valley
Fields
Well
1685
T14N
T13N
T13N
T12N
R4W
R3W
R3W
R2W

☐	RECOMMENDED FOR WILDERNESS
NONE	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
▥	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

N

Sleeping Giant Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-075-111
SEPTEMBER, 1990

There are perennial streams in the lower portions of Rose and Falls Gulches and Sheep Creek. Lakefront lands vary from gentle, grassy slopes to rocky cliffs.

The Sleeping Giant WSA was studied under the authority of Section 603 of the Federal Land Policy and Management Act (FLPMA) through the Sleeping Giant/Sheep Creek Wilderness Study/Environmental Impact Statement which was completed in November 1990. The Sheep Creek portion of the WSA was studied under Section 202 of FLPMA. The two alternatives analyzed in the EIS for this WSA were no wilderness and all wilderness. The entire 10,454-acre WSA is recommended for wilderness designation.

RECOMMENDATION AND RATIONALE -

10,454 acres recommended for wilderness

0 acres recommended for nonwilderness

The recommendation for this WSA is to designate the entire area as wilderness. The all-wilderness alternative is considered the environmentally preferred alternative as it will result in the least change to the natural environment over the long term.

This WSA received strong public support for wilderness designation during the study. The area contains outstanding opportunities for solitude and primitive recreation and is strategically located between Helena and Great Falls, Montana.
Holter Lake and public lands adjacent to the lake are heavily used by recreationists. Designation of the Sleeping Giant/Sheep Creek WSA as wilderness would complement other forms of recreation use in the area.

The area would be manageable as wilderness, although some potential conflicts with other resource uses (private ownership of subsurface mineral rights) exist.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The Sleeping Giant/Sheep Creek boundaries enclose an area that has few imprints of man. Human imprints are few and unobtrusive. At the summit of Beartooth Mountain there are four small prospect pits and an "H" made of slate that appears to have been designed to be visible from the air. None of these features is very noticeable, and their impact is small.

An old homestead (cabin, barn, outhouse and storage shed) stands in the NE 1/4, SW 1/4 of Section 2, T.13 N., R.3 W. This group of buildings, in an unnamed drainage, is not visible from any distance and has little impact on the WSA's naturalness. Other innocuous imprints include a half-mile of abandoned fence and a half-mile of nonfunctional telephone line.

Offsite impacts visible from various points in the unit include boats and cottages along the river, and distant sights and sounds from Interate Highway 15.

The terrain is primarily natural, providing outstanding scenic values within the unit. Offsite vistas of the surrounding landscape are outstanding. They include views of the Missouri River, the Beartooth Game Range and the Gates of the Mountains Wilderness Area, as well as panoramas of distant mountain ranges. The Sleeping Giant WSA generally appears to have been affected only by the forces of nature, with human imprints essentially unnoticeable.

Solitude: The steep, irregular topography and forested slopes offer outstanding possibilities for solitude. The many drainages provide numerous opportunities for users to avoid the sights and sounds of other visitors. The

Douglas fir and lodgepole forests provide considerable vegetative screening which helps to conceal visitors from one another and to muffle sounds.

There are enough drainages to help disperse visitors and to avoid any pronounced corridor effect. The area also offers some 7 miles of ridgeline routes, which could be traveled on foot or horseback. The ponderosa pine savannas and open areas along the river are ideal for cross-country travel as well.

Some outside sights and sounds from motorboats on the Missouri River and from private lands and summer homes have a minor impact on solitude in the unit. Neither of these detractions creates a significant impact on the opportunities for solitude in the WSA.

Primitive and Unconfined Recreation: Because of the diverse physical characteristics of the unit, it holds many opportunities for primitive and unconfined types of recreation. These activities range from winter sports such as snowshoeing and cross-country skiing to water-based pursuits such as fishing and swimming. Hunting, nature study, backpacking, hiking and horse travel are all possible.

The shoreline provides many primitive campsites that are used by river recreationists. While none of these activities is of outstanding quality by itself, the diverse possibilities combine to provide outstanding opportunities for yearlong primitive recreation as a whole.

Special Features: The Sleeping Giant/Sheep Creek WSA, contains a variety of resources that are of scientific, educational, historic and geologic significance.

The Sleeping Giant formation is a well-known landmark and is readily visible from the state's capital city.

The Lewis & Clark National Historic Trail parallels the WSA on the eastern boundary.

Holter Lake and the Missouri River are directly east of the WSA. The unit has approximately 11 miles of shoreline on this water body, which is extremely popular for a wide variety of public recreation activities.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The WSA is included in the Rocky Mountain Forest Province/Western Ponderosa Forest M3110/10 ecosystem. The National Wilderness Preservation System currently has five wilderness areas of this classification. There are no other BLM study areas representative of this ecotype being considered for wilderness designation.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Dry Domain/ Mountain Forest Province/ Western Ponderosa Forest	5	141,915	0	0
MONTANA				
Dry Domain/Rocky Mountain Forest Province/ Western Ponderosa Forest	0	0	0	0

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers — Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Great Falls	20	8,329,000	43	433,000
Billings	13	4,819,000	76	755,000

Balancing the geographic distribution of wilderness areas: Designation of the Sleeping Giant WSA would not contribute significantly to balancing the geographic distribution of areas within the NWPS. The WSA is located within a region of abundant wilderness opportunities; Montana alone contains 3,442,146 acres in sixteen designated wilderness areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

A large portion of this WSA currently is managed as an area of critical environmental concern, and could with few significant changes be managed as wilderness. Guidelines governing activities within the ACEC are quite similar to those for wilderness, in that management objectives are oriented toward protecting and enhancing the area's resources.

One potential for management conflict involves 25 acres of commercial slate deposits in Towhead Gulch. With designation, these claims (totaling 420,000 tons) would not be available for excavation because they were established after the passage of FLPMA. Designation would permanently close these 25 acres to all mining activities, thereby limiting slate excavation to a 56-acre area that lies outside the WSA.

Private mineral rights exist on 43 percent of the area or 4,327 acres. If any of this acreage was explored and later developed direct conflicts with wilderness management would result.

Energy and Mineral Resource Values

A joint mineral survey was conducted by the Bureau of Mines and USGS. An inferred reserve of 420,000 tons of decorative iron oxide-stained slate facing stone occurs in the western part of the WSA on the Sperry Claim group, where 1,200 tons have been produced during the past ten years. The stone commonly sells for $145 to $165/ton. Increase in production will depend on market development.

Several small elevated gravel bars, deposited by the ancestral Missouri River, occur along the eastern boundary of the WSA. The bars total 380,000 yd^3 of gravel containing an average of 0.0032 oz/yd^3 gold, worth $1.52/$yd^3$ at $475/oz gold. The deposits are classified as an inferred, subeconomic resource, because they could possibly be mined at a profit in the foreseeable future.

No geothermal resources are known in the WSA.

Mineral resource potential is high for decorative stone locally in the western part of the WSA. The entire WSA has low resource potential for copper, silver, phosphate, decorative stone (except as discussed above), sapphires in placer deposits, diatomite, oil, gas, uranium, and geothermal energy.

Three individuals own all minerals within 1,967 acres of the WSA (split estate), and oil and gas rights within an additional 640 acres. Oil and gas leases occur as scattered tracts across the study area. Slate has been quarried from placer claims along Towhead Gulch by the Anson family and associates, a consortium originally known as the Atlas Slate Company, since 1906. Edward Sperry located 10 placer stone claims, about 50% of these claims lie within the WSA.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Sleeping Giant WSA

Issue	Proposed Action (All Wilderness)	No-Wilderness Alternative
Impacts on Wilderness Values	Wilderness values would be permanently protected on 10,454 acres.	Under the ACEC's protective management, little wilderness degradation is expected. Slate mining on 1/10 acre would temporarily impair solitude and naturalness on about a 200-acre area.
Impacts on Oil and Gas Exploration and Production	All public subsurface lands would be closed to leasing. No production is expected to be forgone.	No development is anticipated.
Impacts on Wildlife	Satisfactory habitats would be maintained for target species. Future projects would be allowed to protect those species.	Same as under proposed action. ACEC plan would continue to protect most species.
Impacts on Minerals Development - Decorative Stone	56 acres (930,000 tons) of slate reserves would remain available for production; remaining 25 acres would be closed to mineral entry.	All 81 acres of commercial slate reserves (1,350,000 tons) would remain available for excavation.
Impacts on Timber Management	No timber harvest allowed. Tree cutting possible only for authorized purposes.	Same as under proposed action.
Impacts on Recreational Vehicle Use	Motorized vehicles would not be allowed. Present motorized use is nonexistent.	Under ACEC management guidelines, motorized vehicles are not allowed except for special authorized needs.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. BLM's August 1988 request for public comment generated thirty-seven responses regarding the Sleeping Giant/Sheep Creek WSA. All but three respondents disagreed with the proposed decision to remove these areas from further wilderness consideration. The majority of individuals commenting stated that the two units (Sheep Creek and Sleeping Giant) should be studied as one area, and that the dividing power line and its maintenance road were not a significant intrusion.

Eight individuals mentioned energy and minerals concerns; another seven addressed power-line concerns. Recreation-related issues concerned six respondents, while five addressed the long-term protection of wilderness values and management direction under designation. Other reasons for favoring wilderness designation were the area's accessibility, its proximity to Helena and Great Falls, and concerns that present management as an ACEC does not ensure permanent protection.

The Draft Sleeping Giant/Sheep Creek Wilderness EIS released in January 1990 garnered eighty-seven comments. All but three respondents favored wilderness designation for the WSA.

One federal agency responded to the Draft EIS. The Environmental Protection Agency stated that more analysis was needed on the oil and gas potential scenario and on possible impacts to wildlife.

The Montana Department of Fish, Wildlife & Parks supported wilderness designation for the area.

No local government entities commented on the Draft EIS.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)[2]	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition[3]	
			Surface Estate	*Subsurface Estate*			*Land Costs*	*Processing Costs*
T. 14 N., R. 3 W.,								
Sec. 16	55	1	BLM	Pvt.	N	Purchase	$1.65K	
Sec. 21 E1/2	320	1	BLM	Pvt.	N	Purchase	$19.2K	
Sec. 22 SW1/4SE1/4	67	1	Pvt	Pvt.	N	Purchase	$2K	
Sec. 23 W1/2	58	1	BLM	Pvt.	N	Purchase	$2K	
Sec. 26 W1/2	76	1	BLM	Pvt.	N	Purchase	$2.3K	
Sec. 27	136	1	BLM	Pvt.	N	Purchase	$4.1K	
Sec. 31	610	1	BLM	State	N	Purchase	$18.3K	
Sec. 35 W1/2	111	1	BLM	Pvt.	N	Purchase	$3.4K	

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(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

(2) If a parcel larger than that shown in the first column has been recently subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method, only administrative costs of processing the exchange should be shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both costs and the processing costs should be provided.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)[2]	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition[3]	
			Surface Estate	*Subsurface Estate*			*Land Costs*	*Processing Costs*
T. 14 N.,								
R. 4 W.,								
Sec. 25	640	1	BLM	Pvt.	N	Purchase	$19.2K	
Sec. 35 E1/2	320	1	BLM	Pvt.	N	Purchase	$19.2K	
Sec. 36	640	1	BLM	State	N	Purchase	$19.2K	
T. 13 N.,								
R. 3 W.,								
Sec. 2, W. of river	326	1	BLM	Pvt.	N	Purchase	$9.8K	
Sec. 3 S1/2 S1/2N1/2	480	1	BLM	Pvt.	N	Purchase	$14.4K	
Sec. 9	640	1	BLM	Pvt.	N	Purchase	$19.2K	
Sec. 11 W. of river	332	1	BLM	Pvt.	N	Purchase	$10K	
Sec. 5	640	1	Pvt	Pvt.	N	Purchase	$19.2K	$20K

(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

(2) If a parcel larger than that shown in the first column has been recently subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method, only administrative costs of processing the exchange should be shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both costs and the processing costs should be provided.

[illegible]

[illegible]

[illegible]

(1) [illegible]

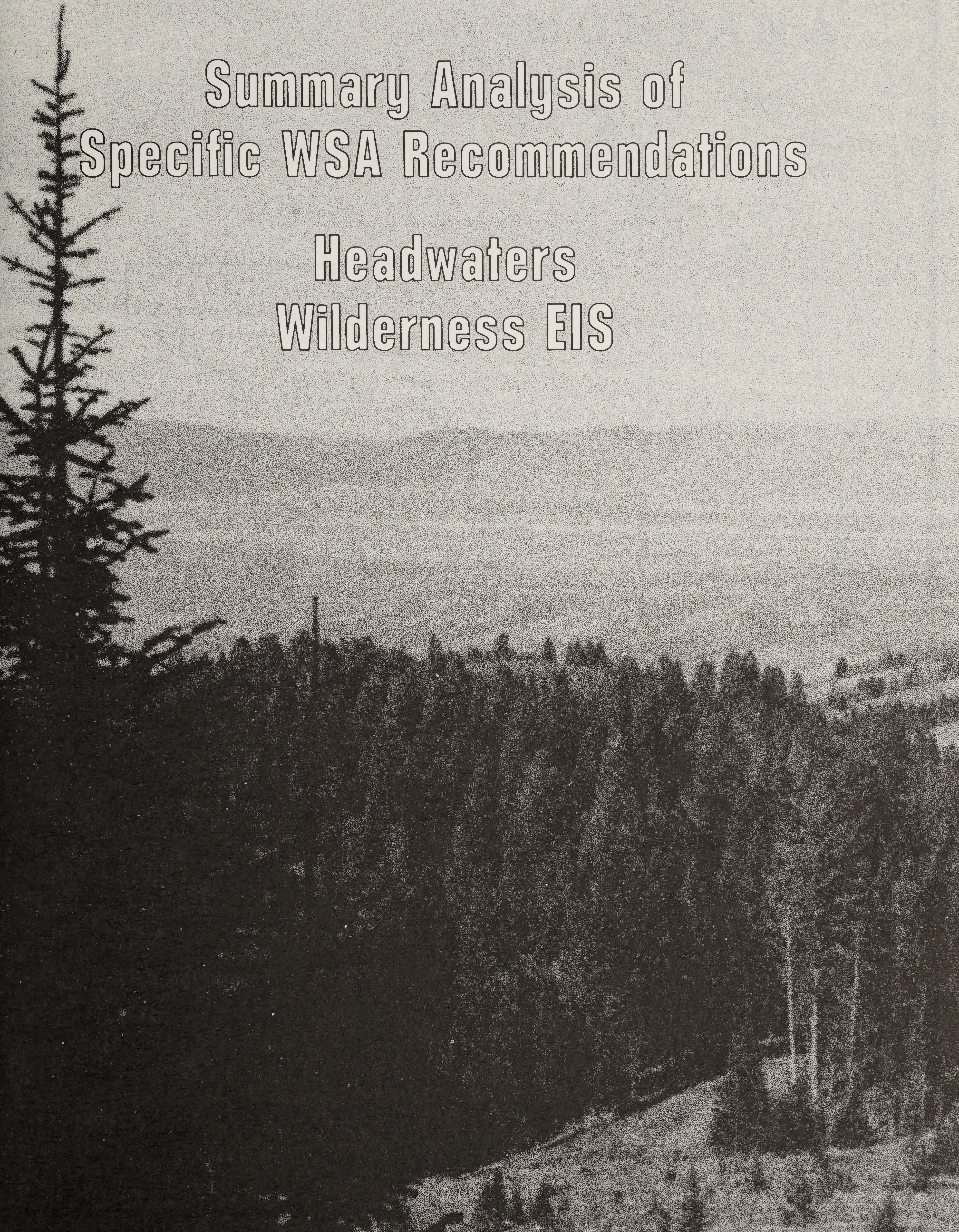
Processing costs are [illegible] agreements, title work, escrow fees, etc.

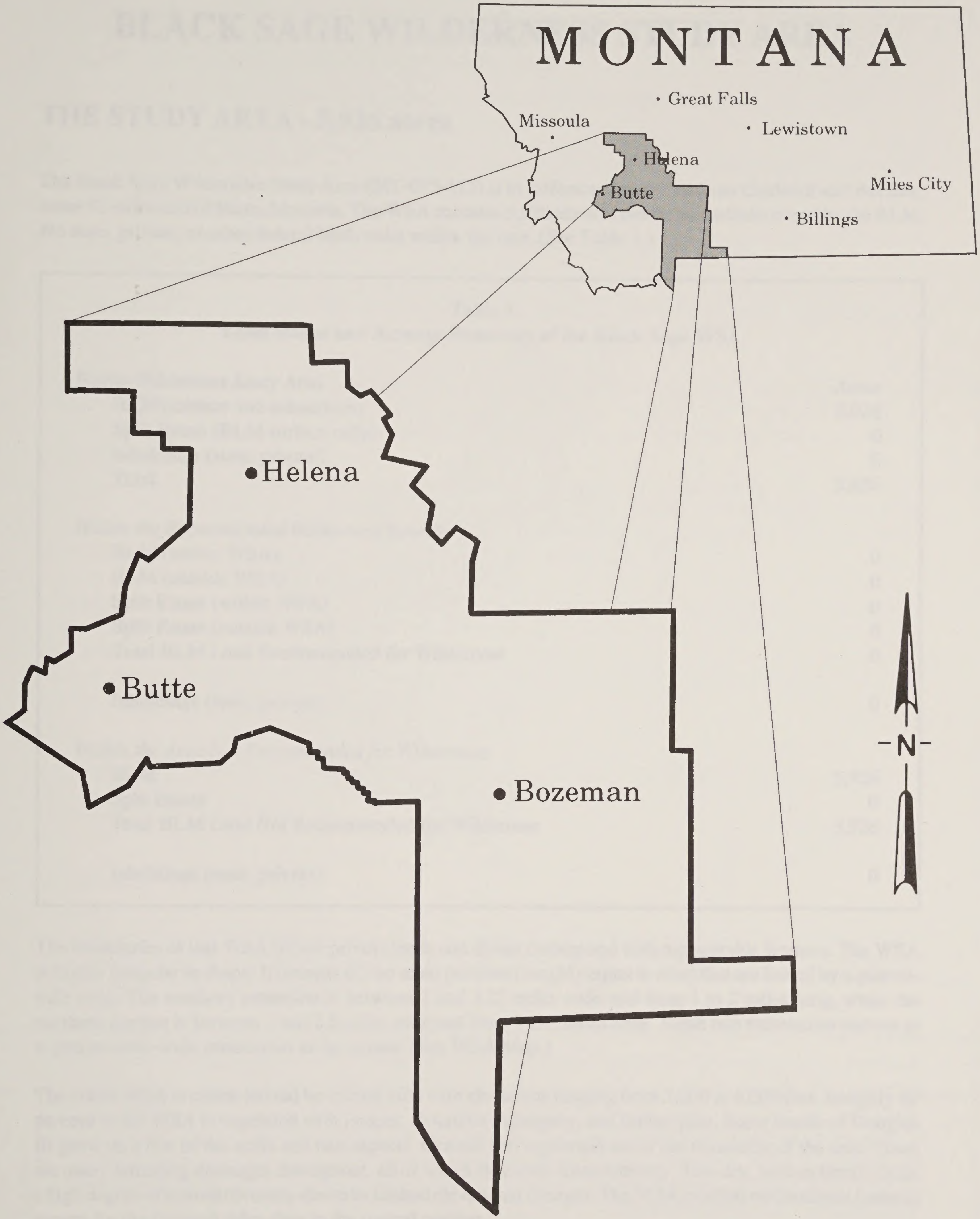
(c) If a parcel larger than [illegible]

[illegible]

Summary Analysis of Specific WSA Recommendations

Headwaters Wilderness EIS




MONTANA
Great Falls
Missoula
Lewistown
Helena
Miles City
Butte
Billings
Helena
Butte
Bozeman
N

HEADWATERS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

BLACK SAGE WILDERNESS STUDY AREA

THE STUDY AREA - 5,926 acres

The Black Sage Wilderness Study Area (MT-075-115) is in Jefferson County between Cardwell and Boulder, some 32 miles east of Butte, Montana. The WSA contains 5,926 acres of public land administered by the BLM. No state, private, or other federal lands exist within the unit. (See Table 1.)

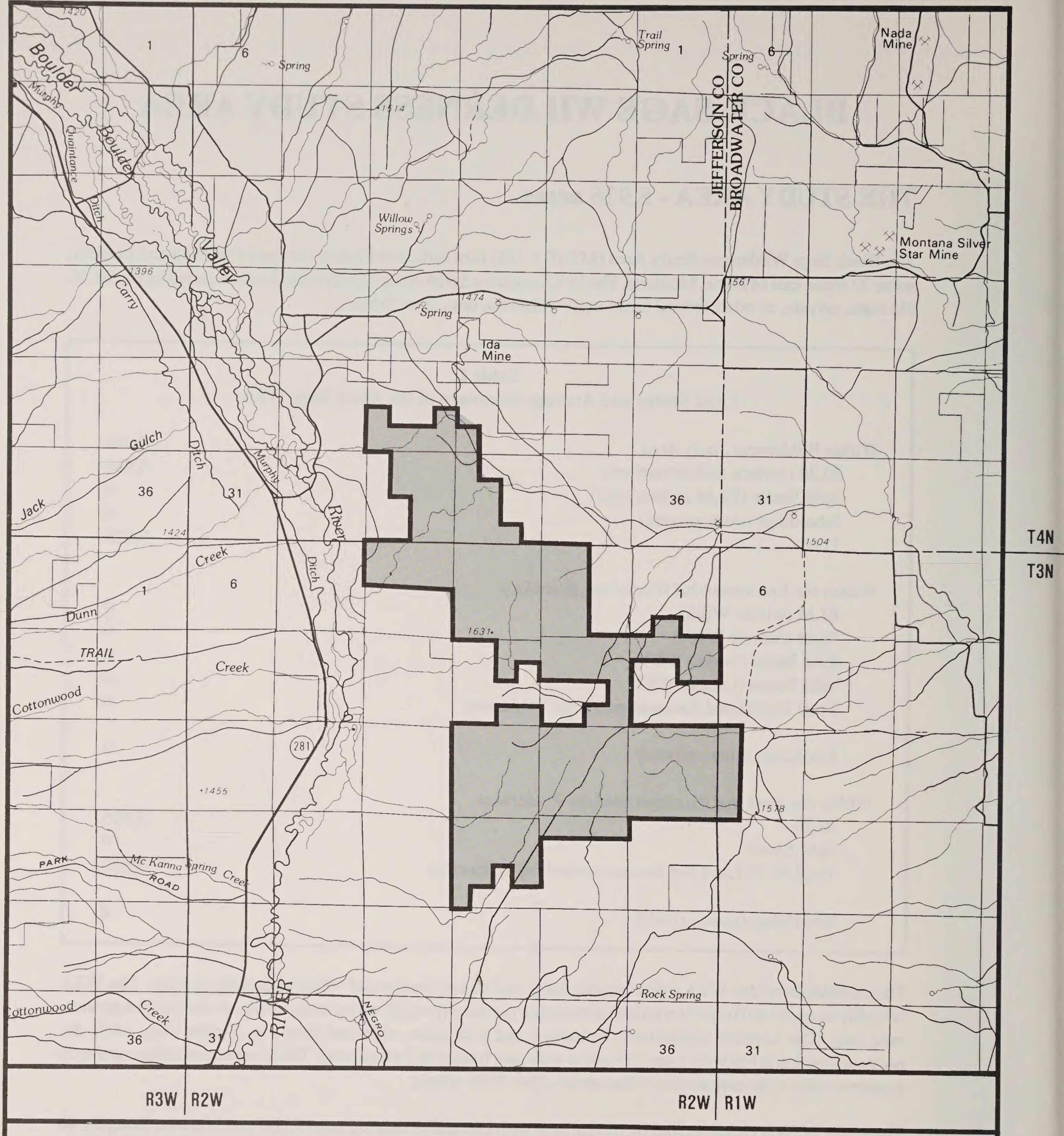
Table 1
Land Status and Acreage Summary of the Black Sage WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	5,926
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	5,926
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	5,926
Split Estate	0
Total BLM Land Not Recommended for Wilderness	5,926
Inholdings (state, private)	0

The boundaries of this WSA follow private lands and do not correspond with topographic features. The WSA is highly irregular in shape: It consists of two main portions (roughly equal in area) that are linked by a quarter-mile strip. The southern extension is between 1 and 3.25 miles wide and from 1 to 2 miles long, while the northern portion is between 1 and 2.5 miles wide and from 1 to 2 miles long. These two extremities narrow to a quarter-mile-wide connection in the center. (See WSA Map.)

The entire WSA is characterized by rolling hills with elevations ranging from 5,000 to 6,000 feet. Roughly 40 percent of the WSA is vegetated with juniper, mountain mahogany, and limber pine. Some stands of Douglas fir grow on a few of the north and east aspects. Grasses and sagebrush cover the remainder of the unit. There are many intruding drainages throughout, all of which flow only intermittently. This dry, broken terrain lacks a high degree of natural diversity due to its limited elevational changes. The WSA exhibits no dominant features except for the forested ridge face in the central portion.

The Black Sage WSA was studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA) through the Headwaters Resource Management Plan/Environmental Impact Statement which was completed in July 1984. The two alternatives analyzed in the EIS for this WSA were no wilderness and all wilderness. The recommended action is no wilderness for the entire 5,926-acre WSA.


Boulder
Murphy
Quaintance
Boulder
Ditch
Valley
Carry
1420
1
6
Spring
1514
Willow Springs
1396
1474
Spring
Ida Mine
Trail Spring
1
Spring
6
JEFFERSON CO
BROADWATER CO
Nada Mine
Montana Silver Star Mine
1561
Gulch
Jack
36
Ditch
31
Murphy
River
36
31
1424
1504
T4N
T3N
Creek
6
1
Ditch
1
6
Dunn
1631
TRAIL
Creek
Cottonwood
281
1455
1578
PARK
Mc Kanna Spring Creek
ROAD
Rock Spring
Cottonwood
Creek
36
31
RIVER
NEGRO
36
31
R3W
R2W
R2W
R1W

NONE	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
▨	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

N

Black Sage Proposal

0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

MT-075-115
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

5,926 acres recommended for nonwilderness

The recommendation for this WSA is not to designate the area wilderness, and to release the area for uses other than wilderness. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change to the natural environment over the long term. The no-wilderness recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The primary factors influencing the recommendation are conflicts with other resource uses, wilderness manageability problems, and overall wilderness quality.

Nondesignation of the WSA would permit the management of other resources that would be incompatible with wilderness. The exploration and possible development of potentially high hydrocarbon deposits would be allowed. Motorized recreational opportunities would remain available, and greater flexibility in existing livestock management would continue.

This WSA would be difficult to manage as wilderness, particularly during the hunting season. The highly irregular configuration of the unit, its poorly identified boundaries, and its open, accessible terrain would make inadvertent trespass by motorized vehicles a significant and continual problem.

Though the area meets the mandatory criteria for wilderness, the overall quality of its wilderness characteristics is only moderate. Limiting factors are the area's poor configuration, its lack of natural screening, and a number of widespread human developments. The WSA contains 7.5 miles of vehicle ways, 6 miles of fences, and a 5.5-mile pipeline project with associated stock tanks and a 23,000-gallon storage tank that cause numerous site specific impacts on the overall natural character of the WSA.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: Though this WSA appears to have been affected mainly by the forces of nature, human impacts are noticeable throughout. The cumulative effect of these imprints reduces the quality of the WSA's naturalness, which is at best rated low to moderate.

Nearly all human impacts within the WSA are associated with livestock grazing and off-road-vehicle (ORV) hunting. Nine vehicle ways, totaling 7.5 miles, are dispersed throughout the unit, as are 6 miles of wood and steel post fences. Three nonfunctional check dams of about two acres in size exist in a primary southern drainage. Impacts associated with a water pipeline project occur in the southern segment. Project developments include about 4.5 miles of buried PVC pipe and about 1 mile of surface galvanized steel pipe, three stock tanks, and a 23,000-gallon water storage tank. The apparent influences of these improvements, though noticeable, do not eliminate the overall apparent naturalness of the WSA due to their locations and natural colors.

Solitude: The poor configuration of the Black Sage WSA makes its core-to-perimeter distance not only small but also hard to evaluate, since it lacks a consolidated central portion. The northern and southern portions lack core-to-perimeter distances greater than 1.5 miles in any direction.

The northern segment offers little in the way of vegetative screening. Vegetation - which consists of juniper, mountain mahogany, sagebrush, and various grasses - is sparse. The topographic relief is created by limestone ridges and intruding drainages. Elevational changes are minor. From any high point, a person can easily see several other ridges, which are virtually without screening qualities. The natural tendency for visitors to travel along the higher areas, because of a lack of attractive features within the dry gullies, would make other users that much more visible.

The southern extremity of the WSA contains denser vegetation, particularly on the north-facing slopes where Douglas fir dominates. The topography is more diverse with many drainages flowing in all directions. Here, users are much better screened from one another.

The overall solitude within the WSA is good, as long as visitor numbers remain low and dispersal rates are adequate. Though the WSA is surrounded by private land, there are no offsite developments that would diminish a user's experience. To the contrary, the distant views of a few ranches and the numerous mountain ranges are a pleasant enhancement.

Primitive and Unconfined Recreation: The Black Sage WSA offers high-quality opportunities for antelope and mule deer hunting. Additional primitive recreation activities include hiking, horseback riding and nature study.

Visitors use the unit for relatively short durations due to the area's small size and lack of surface water. Nonmotorized cross-country travel is not considered highly challenging given the low topographic relief of the area. Present use, at fewer than 100 visitor days per year, is extremely low because no legal public access exists and 1ecreational attractions are lacking.

Special Features: Offsite scenic views of six mountain ranges can be enjoyed from any of the area's high points. Ecologically, the WSA provides crucial winter range for approximately 250 to 300 mule deer.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The major ecosystem represented in this WSA is the grama-needlegrass-wheatgrass ecosystem M3110/57. There are currently no areas in the National Wilderness Preservation System represented by this ecotype. There are no other BLM wilderness study areas of this ecotype under consideration for wilderness designation.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
	NATIONWIDE			
Grama-needlegrass-wheatgrass Sagebrush Steppe Douglas fir Forest	0	0	0	0
	MONTANA			
Grama-needlegrass-wheatgrass Sagebrush Steppe Douglas fir Forest	0	0	0	0

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers - Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas areas	 acres	Other BLM Studies areas	 acres
Billings	13	4,819,000	76	755,000
Great Falls	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: Designation of the Black Sage WSA would not contribute to balancing the geographic distribution of areas within the NWPS. The WSA is located within a region of abundant wilderness opportunities; Montana alone contains 3,442,165 acres in sixteen designated wilderness areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

This WSA would be extremely difficult to manage as wilderness. Its highly irregular configuration and poorly defined boundaries would make inadvertent trespass a continual problem. The open terrain and lack of physiographic features would increase the WSA's vulnerability to offsite intrusions and cross-country motorized travel.

Energy and Mineral Resource Values

The potential for locatable minerals is low and no mining claims exist within the WSA according to BLM geologists. The geologic information available from the district specialist and from the Geology, Energy and Minerals resource evaluation reports suggests that there is a high potential for hydrocarbon deposits underlying this area. The commercial value of these probable reserves is considered low, however. The entire WSA is leased (post-FLPMA) for oil and gas.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Black Sage WSA

Issue	Proposed Action (No Wilderness/No Action)	All-Wilderness Alternative
Impacts on Wilderness Values	Naturalness and solitude would be permanently lost; primitive recreation opportunities would be periodically impaired. An under represented ecotype would not be added to the NWPS.	Wilderness values would be permanently protected on 5,926 acres. Ecotypes would be added to NWPS.
Impacts on Oil and Gas Exploration & Production	Two exploratory wells would be drilled with no production potential.	Two exploratory wells would not be drilled. No production expected to be forgone.
Impacts on Wildlife	Temporary displacement of some resident mule deer and antelope would occur. Additional forage would be created for about 25 mule deer during crucial winter-spring season.	An existing population of antelope and mule deer would continue. Additional forage production for 25 mule deer would be forgone.
Impacts on Recreation	Seventy visitor days of motorized hunting will continue.	All motorized recreation would be eliminated; non-motorized recreation would be enhanced. Net effect: annual loss of 35 visitor days.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public comment occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved vehicle-access and boundary-configuration concerns.

During formal review of the draft RMP/EIS, a total of sixteen comments was received that specifically related to the Black Sage WSA. Seven respondents agreed with the proposed no-wilderness recommendation; nine favored wilderness designation.

The majority of those favoring nonwilderness stated that the WSA should remain open to all resource uses, and that management specifically should not exclude potential mineral and energy development. One person requested that the area be maintained in its present natural condition.

Those favoring wilderness advocated long-term preservation of the area's natural, scenic, wildlife, and primitive recreation values.

No federal, state, or local agencies submitted any WSA-specific comments.

YELLOWSTONE RIVER ISLAND WILDERNESS STUDY AREA

THE STUDY AREA - 53 acres

The Yellowstone River Island Wilderness Study Area (MT-075-133) is located about 2.5 miles northeast of Livingston in Park County, Montana. The WSA totals 53 acres of public land administered by the BLM. No state, private, or other federal lands exist within this WSA. (See Table 1.)

Table 1
Land Status and Acreage Summary
of the Yellowstone River WSA

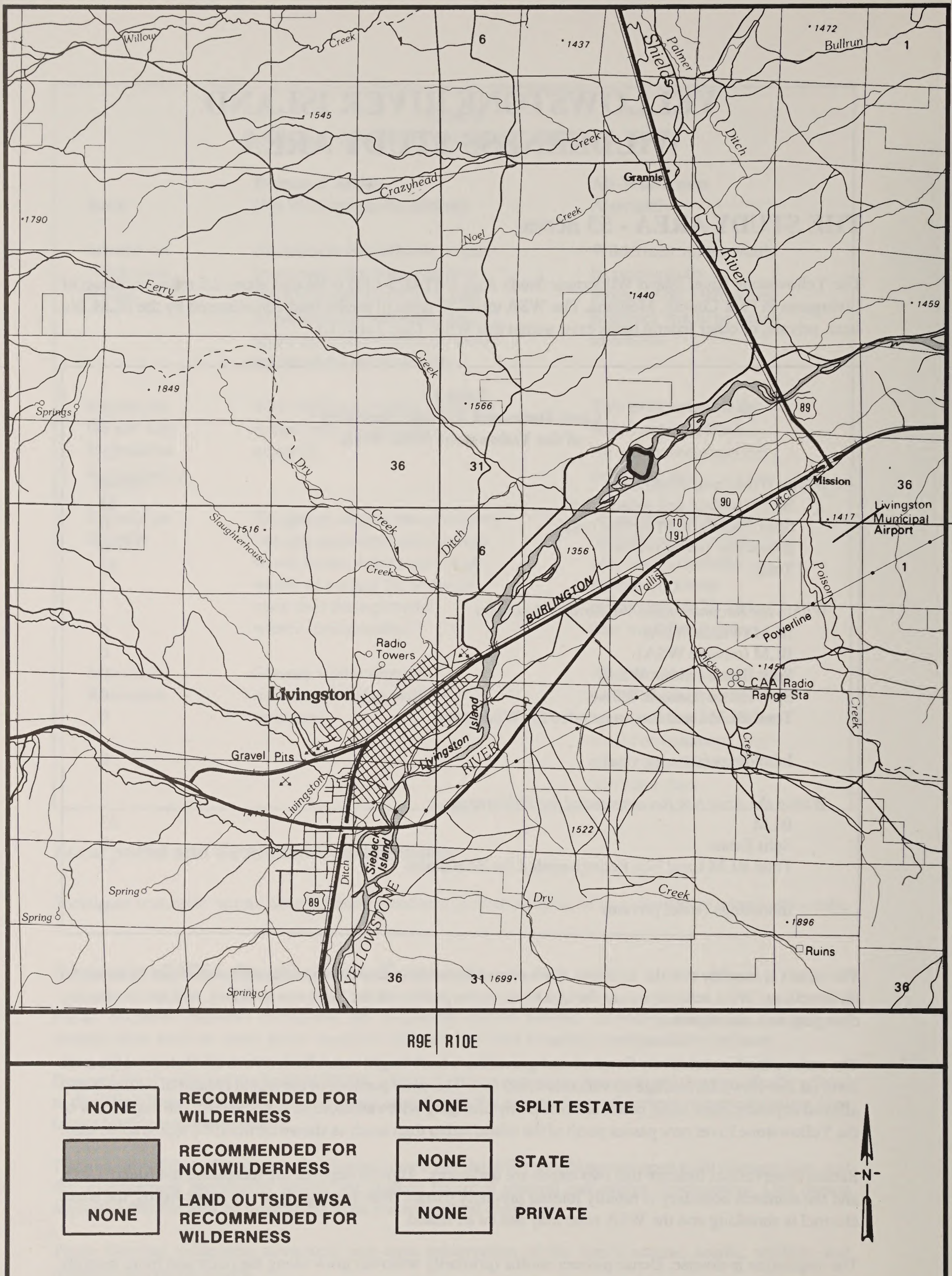
	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	53
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	53
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	53
Split Estate	0
Total BLM Land Not Recommended for Wilderness	53
Inholdings (state, private)	0

The island is roughly circular in shape. Core-to-perimeter distances are approximately one-third of a mile in all directions. WSA boundaries are formed by an active portion of the Yellowstone River, and are continually changing as a consequence.

The entire island is a relatively flat sand-and-gravel bar whose height varies from zero to ten feet above the river level (at low flow). Its average elevation is 4,415 feet. The outer portions of the island consist of cutbanks and alluvial deposits; these outer banks are constantly changing with variations in water levels. The major flow of the Yellowstone River now passes north of the island rather than south as shown on the 1952 topographic map.

Recent observations indicate that two trends are underway. Alluvial deposits are increasing the island's size, and the southern boundary is rapidly joining privately owned river-frontage land - in other words, the south channel is shrinking and the WSA soon may not be an island.

The vegetation is diverse. Dense pioneer shrubs (primarily willows) grow along the outer and more recently formed extremities of the island. The more stable and higher interior portion (about 50% of the island) displays cottonwood stands intermixed with open grassy areas.


Willow Creek
6
1437
1472
Bullrun
1
Shields
Palmer
Ditch
1545
Creek
Grannis
Crazyhead
1790
Noel
Creek
River
Ferry
1440
1459
Creek
1849
Springs
1566
89
36
31
Dry
Mission
36
90
Ditch
Livingston Municipal Airport
T1S
T2S
Slaughterhouse
1516
Creek
1417
10
191
1
Ditch
6
1356
Creek
Poison
1
Vallis
BURLINGTON
Powerline
Radio Towers
Chicken
1454
CAA Radio Range Sta
Livingston
Livingston Island
Creek
Gravel Pits
RIVER
Creek
Livingston
1417
1522
Siebeck Island
Ditch
Spring
89
Dry
Creek
Spring
YELLOWSTONE
1896
Ruins
36
31
1699
36
Spring
R9E
R10E

NONE	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
▨	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

-N-
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Yellowstone River Island Proposal

MT-075-133
SEPTEMBER, 1990

Several high-water channels thread the WSA. Marshy areas along the lower portions of these waterways support a wide array of riparian vegetation.

All 53 acres of the Yellowstone River Island were studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA) through the Headwaters Resource Management Plan/Environmental Impact Statement which was filed in July 1984. The two alternatives analyzed in the EIS for this WSA were no wilderness and all wilderness.

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

53 acres recommended for nonwilderness

The recommendation for this WSA is not to designate the area as wilderness, and to release the area for uses other than wilderness. The all-wilderness alternative is considered to be the environmentally preferred alternative as it would result in the least change to the natural environment over the long term. The no-wilderness recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

Nondesignation would not subject the island's natural values to any anticipated resource impacts. Long-term management of the WSA as wilderness would be difficult. The island is small and, despite its vegetative screening, has a low carrying capacity for visitor use. This problem will become more critical if the southern river channel ceases to flow as recent trends indicate will happen. In that event, boat access or pull-over sites would be limited to the island's northern bank, thereby concentrating visitor use. A related concern, which would further degrade the island's solitude and its primitive and unconfined recreation qualities, is that of cattle trespass across the shallow channel from an adjoining ranch.

Nearby lands on both sides of the river are in high demand for further residential subdivisions. Though offsite, such developments would increasingly degrade the perceptions of naturalness and opportunities for solitude.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The island appears to have been affected mainly by the forces of nature with human influence essentially absent. The only onsite impacts are two old cars inconspicuously located on the east and west ends of the WSA. These vehicles could be removed with minimal effort.

Offsite development presents the most significant threat to the naturalness of the WSA. Immediate intrusions include two private homes directly across the river to the north and a ranch across the shallow channel to the south. Impacts within one mile of the island include three ranches, numerous homes, a paved county road, Interstate 90, U.S. Highway 10, and the active Burlington Northern Railroad. U.S. Highway 89 runs less than one-half mile away, and the Livingston Municipal Airport 2 miles east produces frequent aircraft overflights.

Cumulatively, these intrusions degrade the naturalness of the island despite its interior vegetative screening and the noise of the river. Though the island itself is highly natural in character, offsite intrusions are noticeable and diminish a user's appreciation of the WSA's primeval chracter. The island's overall naturalness quality is moderate.

Solitude: Opportunities for solitude in the WSA are high in the interior because of the dense vegetative screening. However, opportunities are only fair near the edges of the island, where most use would and does occur. This characteristic could be significantly affected, however, if present conditions continue and the southern river channel disappears. The many offsite developments impair visitors' feeling of solitude when using the extremities of the island.

Primitive and Unconfined Recreation: Opportunities for primitive and unconfined recreational activities are numerous and of high quality. The island currently is used for hunting pheasants, waterfowl, white-tailed deer, fishing, and overnight camping. Perhaps the most popular activity is the quality fishing along the island's shores. The Montana Stream Classification Committee has designated this portion of the Yellowstone Class I (highest value fishery resource) - the top rating given to fishing waters in the state.

The wide diversity of plant life and associated animal populations (white-tailed deer, grouse, beaver, waterfowl, blue heron and other bird species) ensures good nature study and photographic opportunities for visitors. Other potential activities include canoeing, floating, and overnight camping.

Special Features: The WSA offers numerous ecological features of educational and scenic value. Due to the island's diverse vegetation, a wide range of wildlife can be seen. The cattail marsh areas, willow thickets, cottonwood stands, and open areas support a wide variety of songbirds.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Yellowstone River Island WSA best represents the Northern Floodplain Forest ecosystem as defined by Bailey and Kuchler. There is one representative in the National Wilderness Preservation System and no other BLM WSAs of this ecotype being considered for possible wilderness designation. The island is not an ideal representative of this type, however, due to its small size and limitations in plant composition. Ecosystem representation was not a major factor affecting the suitability of the WSA for wilderness. Table 2 summarizes this information.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
	NATIONWIDE			
Northern Floodplain Forest	1	7,088	0	0
	MONTANA			
Northern Floodplain Forest	0	0	0	0

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers - Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings	13	4,819,000	76	755,000
Great Falls	20	8,329,000	43	433,000

Balancing the geographic distribution of wilderness areas: Designation of the WSA would not contribute to balancing the geographic distribution of areas within the NWPS. The WSA is located within a region of abundant wilderness opportunities; Montana alone contains 3,442,165 acres in sixteen designated wilderness areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

Long-term management of this WSA as wilderness would be difficult. The island is small and, despite its vegetative screening, has a low carrying capacity. This problem will intensify considerably if the southern river channel ceases to flow as trends indicate. Boat access or pull-over sites would then be limited to the northern half of the island, thereby concentrating visitor use. Another concern would be that of cattle trespass from the adjoing ranch.

The surrounding land on both sides of the river is in demand for residential subdivisions. Such development, though offsite, would further degrade the island's naturalness and opportunities for solitude.

Energy and Mineral Resource Values

According to the U.S. Geological Survey and Bureau of Mines, resource potential for sand and gravel is high and low for oil and gas, all metals, and geothermal energy. There are no mining claims or oil and gas leases on the island.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Yellowstone River Island WSA

Issue	Proposed Action (No Wilderness/No Action)	All-Wilderness Alternative
Impacts on Wilderness Values	Given the extent of use restrictions and the inaccessibility of the island, no degradation to the natural or primitive recreation values is expected.	Wilderness values would be permanently protected 53 acres.
Impacts on Recreation	Eighty visitor days of use by river floaters would continue. Primitive forms of recreational opportunities are not expected to change.	Recreational use of the island by river floaters would increase by 16 visitor days. All recreational values would be preserved.
Impacts on Wildlife	The quality of wildlife values would be protected under custodial management. No change in wildlife populations or habitat conditions is expected.	Wildlife values would be permanently preserved through long-term statutory management.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public comment occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved the island's limited carrying capacity and conflicts with offsite developments.

During formal review of the draft RMP/EIS, a total of fifteen comments was received that specifically related to the Yellowstone River WSA. Five people supported the proposed no-wilderness recommendation; ten favored all wilderness.

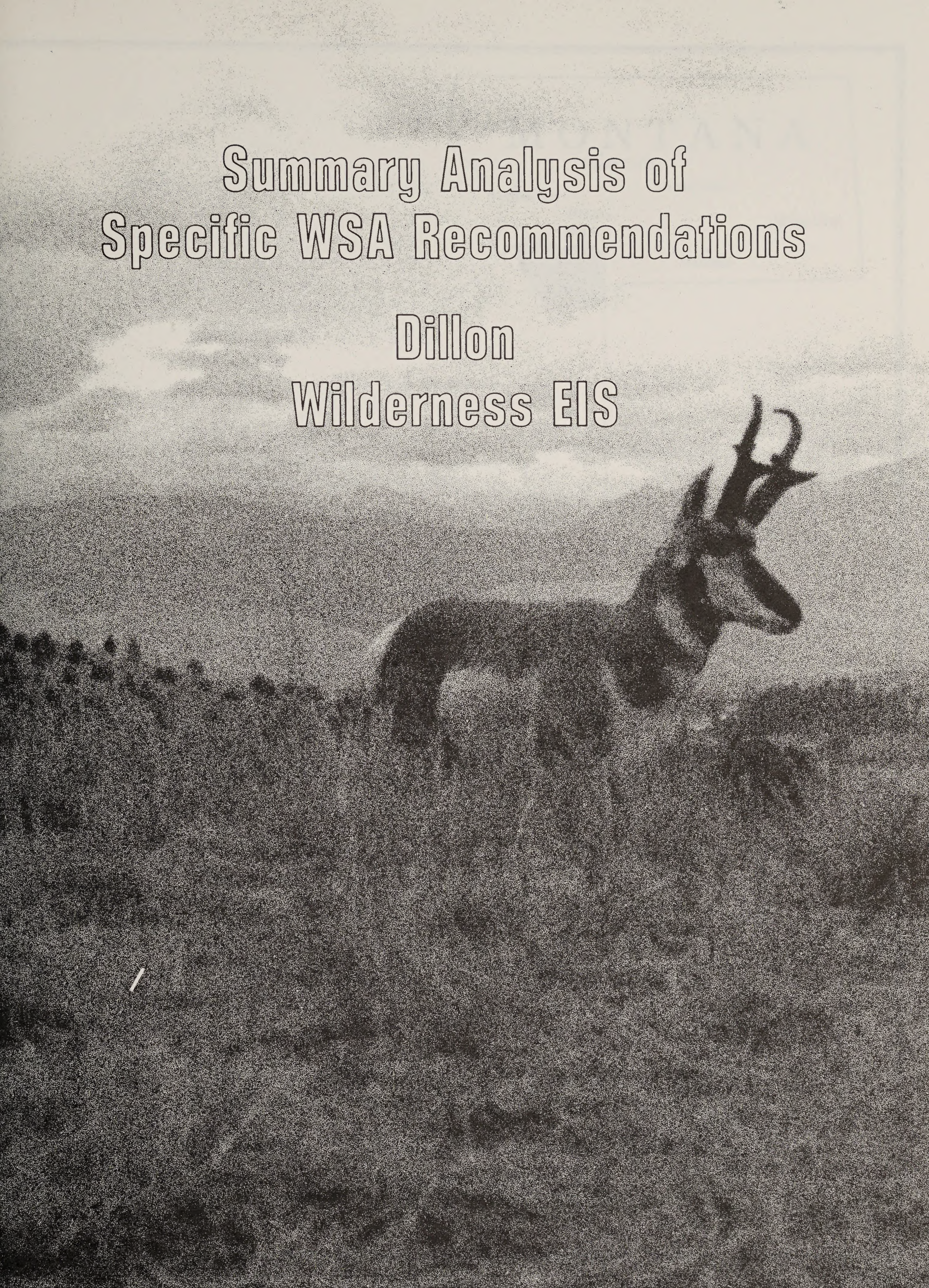
The majority of those favoring nonwilderness believed that the area did not qualify for wilderness and should remain under multiple-use status and not be excluded from potential mineral.

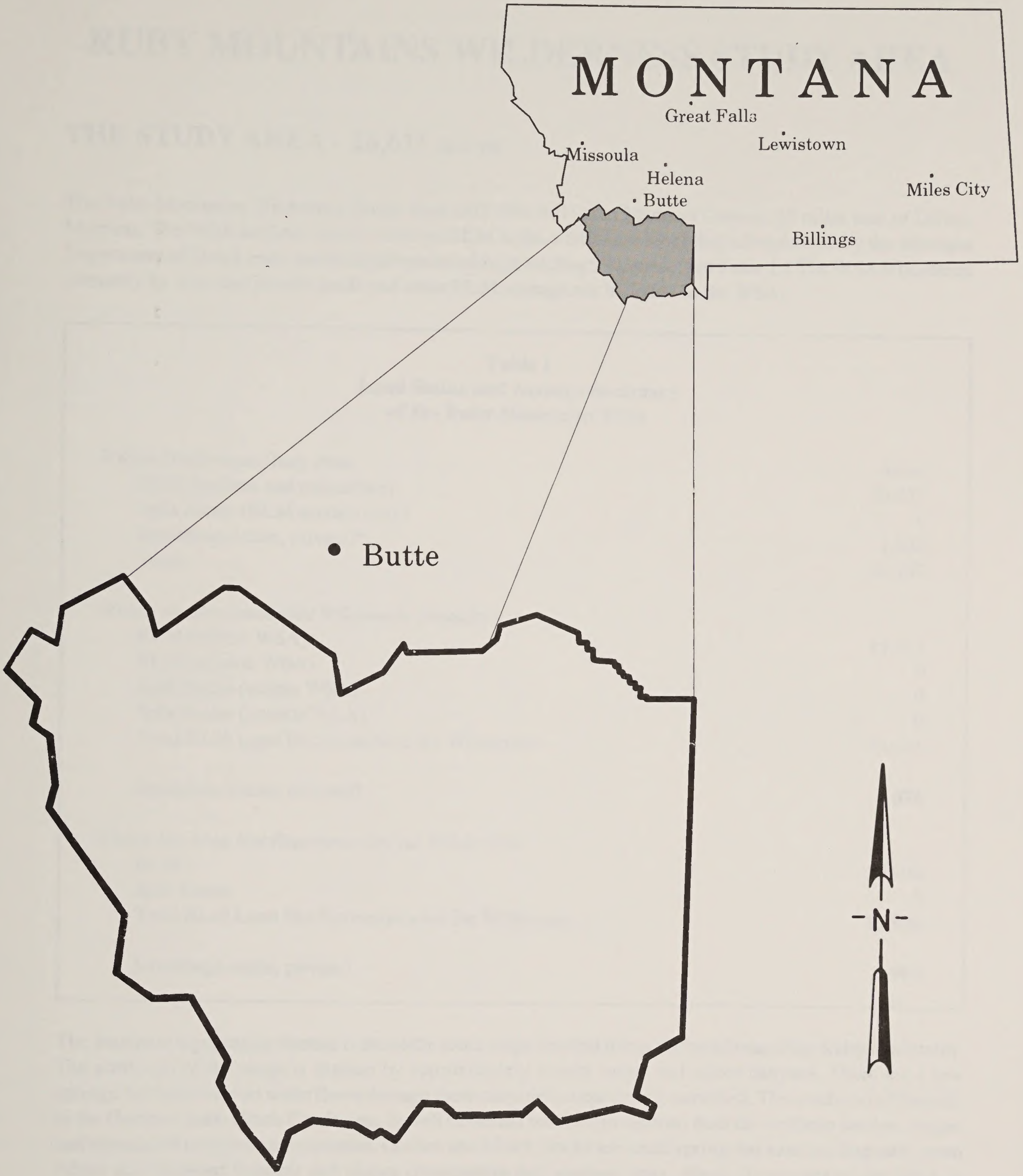
Those favoring wilderness advocated long-term preservation of the area's ecological, scenic and wildlife values.

No federal, state, or local agencies submitted any WSA-specific comments.

Summary Analysis of Specific WSA Recommendations

Dillon Wilderness EIS




MONTANA
Great Falls
Missoula
Lewistown
Helena
Butte
Miles City
Billings
Butte
N

DILLON WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

RUBY MOUNTAINS WILDERNESS STUDY AREA

THE STUDY AREA - 26,611 acres

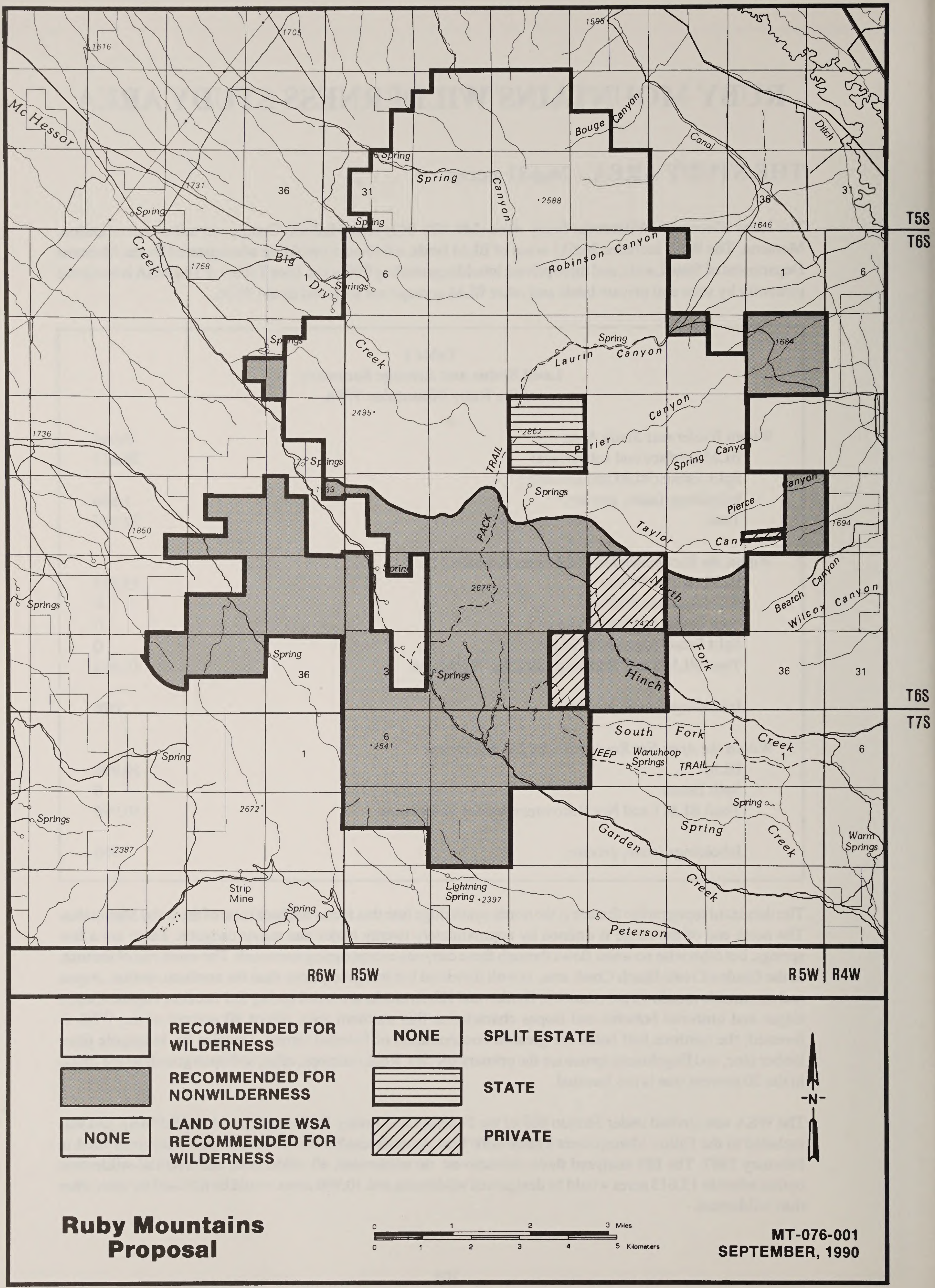
The Ruby Mountains Wilderness Study Area (MT-076-001) is in Madison County, 15 miles east of Dillon, Montana. The WSA includes 26,611 acres of BLM lands, a 640-acre inholding administered by the Montana Department of State Lands, and three private inholdings totaling 996 acres. (See Table 1.) The WSA is bordered primarily by state and private lands and other BLM acreage not included in the WSA.

Table 1
Land Status and Acreage Summary
of the Ruby Mountains WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	26,611
Split Estate (BLM surface only)	0
Inholdings (state, private)*	1,636
Total	28,247
Within the Recommended Wilderness Boundary	
BLM (within WSA)	15,615
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	15,615
Inholdings (state, private)*	676
Within the Area Not Recommended for Wilderness	
BLM	10,996
Split Estate	0
Total BLM Land Not Recommended for Wilderness	10,996
Inholdings (state, private)	960

The dominant topographic feature is the north-south ridge line that forms the backbone of the Ruby Mountains. The north end of the range is drained by approximately twenty major and minor canyons. There are a few springs, but otherwise no water flows through these canyons except during snowmelt. The south end of the unit, in the Garden Creek-Hinch Creek area, is well dissected but less precipitous than the northern section. Aspen and streamside meadows are common. Garden and Hinch creeks are small spring-fed streams. Exposed, open ridges and timbered bottoms and slopes characterize this southern area. About 80 percent of the WSA is forested; the northern half holds the greatest concentration of forested terrain. Douglas fir, lodgepole pine, limber pine, and Engelmann spruce are the primary species. Rock outcrops, talus, and open grassland are found in the 20 percent that is not forested.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987. The EIS analyzed three alternatives: no wilderness, all wilderness, and a partial-wilderness option wherein 15,615 acres would be designated wilderness and 10,996 acres would be released for uses other than wilderness.


McHessor
Creek
1616
1705
1598
Bouge Canyon
Canal
Ditch
Spring
Spring
Canyon
2588
36
31
36
31
1731
Spring
Spring
1646
T5S
T6S
Robinson Canyon
Big
Dry
Creek
1758
Springs
6
1
6
Springs
Spring
Laurin
Canyon
1684
2495
2862
TRAIL
Canyon
Perier
Spring
Canyon
1736
Springs
Springs
1733
Canyon
Pierce
Taylor
Canyon
1694
1850
PACK
Spring
2676
North
Fork
Beatch Canyon
Wilcox Canyon
Springs
2423
Spring
36
3
Springs
Hinch
36
31
T6S
T7S
South
Fork
Creek
6
2541
1
JEEP
Warwhoop Springs
TRAIL
1
6
Spring
Springs
2672
Spring
Spring
Creek
Garden
Creek
Warm Springs
2387
Strip Mine
Lightning Spring
2397
Spring
Peterson
R6W
R5W
R5W
R4W
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Ruby Mountains Proposal

MT-076-001
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -
15,615 acres recommended for wilderness
10,996 acres recommended for nonwilderness

The recommendation is to designate 15,615 acres of the WSA as wilderness, and to release 10,996 acres for uses other than wilderness. Included within part of the WSA recommended for wilderness are two inholdings — a 640-acre parcel owned by the state of Montana and a 36 acre private inholding. Acquisition of these parcels would improve the manageability of the proposed wilderness. This wilderness proposal recommends these inholdings be acquired through purchase from or exchange with willing owners. Appendix 1 lists all inholdings and split-estate tracts and provides additional information on the acquisition of inholdings and split-estate minerals. The areas recommended and not recommended for wilderness designation are shown on Map 1. The all-wilderness alternative is considered the environmentally preferred alternative, as it would cause the least change in the natural environment over the long term. The recommendation, however, would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The major factors influencing the recommendation are wilderness quality, wilderness management problems, and other resource use conflicts.

The 15,615 acres recommended for wilderness would comprise primarily the rugged, forested north end of the Ruby Range and would mainly consist of the Douglas fir forest ecosystem, with a limber pine subsystem of interest. Included in the proposed wilderness are over 12,000 acres not grazed by livestock, as well as the unit's most challenging terrain (with the best opportunities for solitude, significant mule deer range, and cultural resources).

One area within the portion recommended for wilderness contains geologic structures associated with talc occurrence (indicating talc potential), but there are no known occurrences of ore-grade deposits. Several similar areas to the south, both outside the WSA and in the portion not recommended for wilderness, are more accessible and available for development. The WSA contains no recorded mining claims, and no existing oil and gas leases.

Most of the 10,996 acres not recommended for designation present lower wilderness qualities and other resource values or uses. The greatest concentration of human impacts is located here: fences, vehicle routes, old timber cuts, and buildings, such as a line shack. The narrow, irregular configuration in the southern portion of the WSA reduces the area's opportunities for solitude. Most of the area is grazed by livestock and contains areas suitable for motorized recreation, all of the commercial timber, and a portion of the WSA that includes two of the inholdings.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory concluded that this large WSA appears natural in character, with the major impact being a stock driveway. Among other relatively minor imprints are 4.5 miles of fence and 17.5 miles of vehicle ways.

A number of these imprints — all of the fencing, 6 miles of vehicle ways, about 1.5 miles of the stock driveway, one partially logged area, and a corral and line shack — are in the south-central part of the WSA roughly between Garden Creek and Hinch Creek. Most of the other human imprints are dead-end, lightly used vehicle ways that extend short distances up some of the canyons.

The greatest impact on naturalness in the WSA is the stock driveway extending from the south-central part of the WSA to the western boundary. Much of this driveway has been constructed with substantial cuts and fills. The portion near Big Dry Creek is in timber, so it is less obtrusive than the parts along open slopes south of Ruby Peak. Rehabilitation would be possible over a fairly long time if the driveway's use were modified or discontinued.

Most of the north end of the WSA (approximately 12,640 acres) is not used for livestock grazing; thus, the natural composition of vegetation is not affected.

Solitude: The well-dissected topography and forest cover afford outstanding opportunities for solitude. Only in the southern portion, where the WSA has a narrow and irregular configuration, are these opportunities restricted somewhat. Elevations vary from about 5,320 feet on the prairie at the east edge of the WSA to 9,391 feet on Ruby Peak. The elevation of more than half the WSA is about 8,000 feet.

Distant views of the Ruby and Beaverhead valleys from the higher peaks and from some of the open ridge lines have an insignificant effect on solitude.

On the Mormon Peak ridge at the extreme south end of the WSA (south of Garden Creek), sounds of the nearby Treasure talc mine occasionally can be heard. North of this ridge the external influence of the mine is not significant.

Primitive and Unconfined Recreation: The opportunities for diverse types of primitive recreation are excellent. Visitors can hike, backpack, or ride horseback in spring, summer and fall. The opportunities are excellent for winter recreation, including hiking in the lower elevations and skiing and snowshoeing in the high country.

The size and challenging terrain of the WSA afford excellent opportunities for daytime use and trips of several days' duration among the canyons, peaks, and other points of interest. The diverse topography provides chances for scenic backcountry travel. The southern and central parts of the WSA present the best terrain for horseback riding. Challenging hiking is the only mode of travel possible through the rugged terrain in the forested northern part of the WSA.

Big game hunting is the WSA's primary recreation use at present. Possibilities for hunting mule deer and elk are outstanding.

Special Features: The scenic quality and variety of the WSA are high. Steep canyons, cliffs, timbered slopes, ridgetop parks, and sagebrush-grassland slopes and meadows abound. Free-standing rock walls, caves, and cliff faces add to the scenic interest.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The WSA is located within the Rocky Mountain Forest Province/Douglas Fir Forest M 3110/11. There are currently seventeen areas of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	17	1,345,741	12	98,328
MONTANA				
Rocky Mountain Forest Province/Douglas Fir Forest	0	0	10	75,090

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Ruby Mountains WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is situated in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and has 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The portion of the WSA recommended for wilderness designation can reasonably be managed as wilderness to preserve values now present. One section of state land (640 acres) and one patented mining claim (36 acres, one owner) are located inside the WSA boundary. The state section would be a potential source of development activity (such as talc mining) affecting solitude, scenery, and vegetation. The state has expressed an interest in exchanging its lands for others located outside wilderness boundaries. Acquisition of the patented mining claim would remove problems of access up Taylor Canyon.

Two private parcels located in the portion of the WSA not recommended for wilderness could present conflicts from nonconforming uses or access rights. These issues would not preclude designation, however, because boundary adjustments or exchanges for these lands are possible. The primary use of the two parcels is livestock grazing.

Energy and Mineral Resource Values

The Geological Survey and the Bureau of Mines prepared a mineral assessment for the Ruby Mountains WSA in 1987. Portions of the WSA show a potential for the occurrence of talc, which is mined at two locations south of the WSA.

Areas just south of the study area near existing mines contain the same talc-associated geologic structures, and are more accessible than possible deposits in the WSA if the mining operations were to expand. No mining claims are recorded for any of these areas in the WSA. The area appears to exhibit a low to moderate potential for metamorphic minerals (iron, sillimanite, kyanite) and low potential for metallics and oil and gas. No geothermal resources are known to exist within or immediately adjacent to the WSA.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation, nondesignation, or partial designation of the Ruby Mountains WSA as wilderness.

Table 4
Comparative Summary of Impacts - Ruby Mountains WSA

Issues	Proposed Action (Partial Wilderness)	All-Wilderness Alternative	No-Wilderness/No-Action Alternative
Impacts on Mineral Development	This alternative would have a moderate impact on 3,200 acres with a moderate potential for minerals. The opportunity to develop 8,500 acres of moderate to high potential mineral lands would be lost.	This alternative will not have a major impact on known mineral development, but would preclude development of unknown minerals if present.	There would be no impact on mineral exploration and development because these activities could go forward as market conditions permit.
Impacts on Livestock Levels	Impacts to livestock grazing management would be a loss of ten AUMs of potential future use.	Designation probably would preclude an increase of 85 AUMs over the long term in the Garden Creek allotment.	There would be an increase of 85 AUMs under this alternative.
Impacts on Forest Harvest Levels and Timber Economics	All four Economic Analysis Units would be completely outside the area recommended for wilderness designation; the impacts would be the same as for No Wilderness.	This alternative would not change the potential of the land for forest growth, but it would eliminate a potential harvest of 1,024 mbf per decade from the sustained yield base.	This alternative would allow 1 mmbf to be harvested per decade over present levels. There would be no impact.
Impacts on Wilderness Values	Wilderness values would be preserved in about the same manner as under All Wilderness, except that ecosystem and habitat diversity in the southern portion (2,275 acres) would be lost from potential logging and mining.	Designation of the WSA as wilderness would preserve the Ruby Mtns ecotype, the excellent opportunities for solitude, important recreational and scenic values, elk habitat, and the pristine character of the central mountain area.	The harvest of 1 mmbf and the possible development of talc deposits would have the greatest impact on the central and southern portions of the area. Construction of roads and development itself would eliminate solitude and naturalness in the areas affected.

Impacts on Recreation	Primitive recreation in the northern part would be retained, but motorized recreation would replace primitive recreation in the southern portion. Fewer than 100 RVDs per year of motorized use would be replaced by fewer than 100 RVDs per year of primitive recreation use.	Fewer than 100 RVDs per year of motorized use would be curtailed while the quality of primitive recreation would improve over the entire WSA.	There would be no impact on recreation opportunities. They would remain about at present levels of 300 RVDs per year.
Impacts on Big Game Wildlife Habitat	The net impacts on wildlife would be moderately beneficial to mule deer and slightly detrimental to elk. Habitat would be impaired on 2,275 acres by mining and logging activities.	Wilderness designation would be slightly detrimental to forage production for mule deer by eliminating timber harvest and a proposed burn. This result would be offset by positive impacts due to lack of disruption from mining and logging.	This alternative would be beneficial to mule deer habitat, but would adversely affect elk habitat. Since mule deer are of major importance in this area (while elk are minor), the net impact on big game habitat would be moderately beneficial.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved the use of private inholdings and the effects of wilderness designation on timber, mining and grazing uses.

During public review of the Draft EIS, a total of 34 communications was received on the Ruby Mountains WSA. Ten supported the BLM proposal for partial wilderness. Fourteen favored no wilderness, while four favored all wilderness for the study area. One of those who favored nonwilderness indicated that a boundary could be drawn to eliminate his objections. One respondent expressed no clear opinion.

Most of those supporting the proposal believed that the area with highest wilderness quality and few resource conflicts had been proposed for designation. Those supporting more or all wilderness believed that the area's diversity could be enhanced, that resource conflicts were minimal, and that important wildlife habitat should be included.

Those favoring nonwilderness cited minerals, timber, and grazing conflicts, as well as problems with inholdings and limited wilderness quality.

Five respondents proposed new alternatives with a larger proposed wilderness.

No federal, state, or local agencies submitted any WSA-specific comments.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)[2]	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition[3]	
			Surface Estate	*Subsurface Estate*			*Land Costs*	*Processing Costs*
Parcel No. 1 T.6S, R.5W, Section 16	640	one	State	State	Yes	Exchange	N/A	$8,000
Parcel No. 2 T.6S, R.5W, Section 24 Portions of lots 5, 6, 7, 8, 9, and 10 patented under the 1872 mining law. Section 23 Portion of Lot 5 patented under the 1872 mining law.	36	one	Private	Private	No	Exchange	N/A	$8,500

(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

(2) If a parcel larger than that shown in the first column has recently been subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method only administrative costs of processing the exchange are shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both the land costs and the processing costs should be provided.

BLACKTAIL MOUNTAINS WILDERNESS STUDY AREA

THE STUDY AREA - 17,479 acres

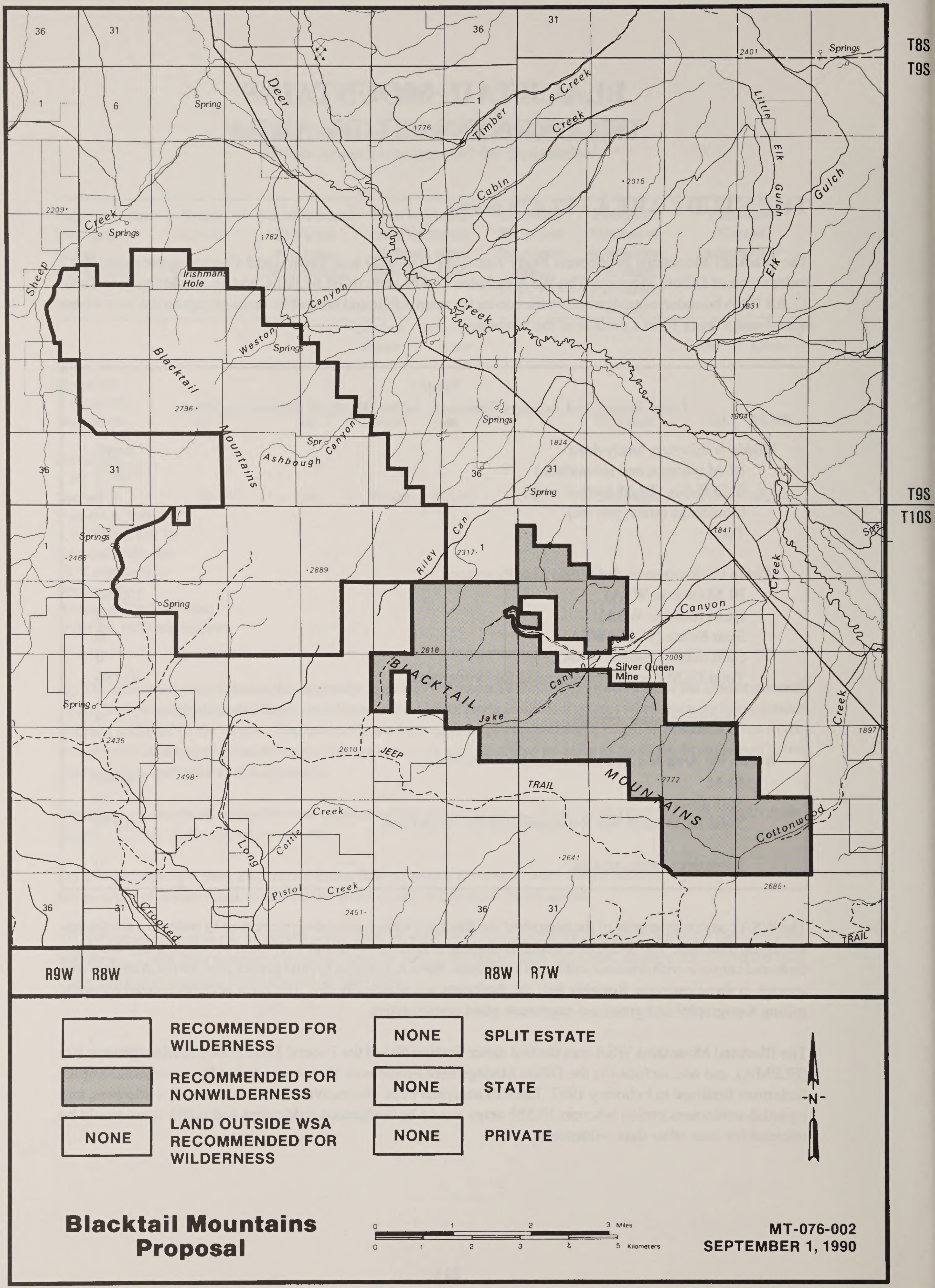
The Blacktail Mountains Wilderness Study Area (MT-076-002) is in Beaverhead County, approximately 12 miles south of Dillon, Montana. The WSA includes 17,479 acres of BLM lands, and no inholdings (see Table 1). All WSA boundaries are formed by the border between public and nonpublic lands except on the west where a road and a fence form a portion of the boundary.

Table 1
Land Status and Acreage Summary of the Blacktail Mountains WSA

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	17,479
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	17,479
Within the Recommended Wilderness Boundary	
BLM (within WSA)	10,586
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	10,586
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	6,893
Split Estate	0
Total BLM Land Not Recommended for Wilderness	6,893
Inholdings (state, private)	0

The WSA consists primarily of the summit of the Blacktail Range, extending more than 11 miles in a northwest-southeast direction. The WSA also contains drainages leading north and northeast, of which many are deep, timbered canyons with dramatic cliffs and headwalls. Spruce, Douglas fir, and limber pine are the dominant tree species in these canyons. Roughly half the drainages are seasonally dry. The crest is characterized by open, rolling topography and grassland-sagebrush plant communities.

The Blacktail Mountains WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement finalized in February 1987. The EIS analyzed three alternatives: no wilderness, all wilderness, and a partial-wilderness option wherein 10,586 acres would be designated wilderness and 6,893 acres would be released for uses other than wilderness.


T8S
T9S
T10S
R9W
R8W
R7W
36
31
6
1
Deer
Timber
Creek
6 Creek
Little Elk Gulch
Elk
Gulch
Springs
Spring
Cabin
Creek
Sheep
Irishmans Hole
Weston
Canyon
Blacktail
Mountains
Ashbough
Spr
Canyon
Riley
Can
Spring
Canyon
Silver Queen Mine
BLACKTAIL
MOUNTAINS
Jake
JEEP
TRAIL
Creek
Long
Cattle
Pistol
Creek
Crooked
Cottonwood
2401
1776
2015
2209
1782
1831
2796
1804
1824
1841
2317
2465
2889
2818
2009
2435
2610
2498
2772
1897
2641
2685
2451
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Blacktail Mountains Proposal

MT-076-002
SEPTEMBER 1, 1990

RECOMMENDATION AND RATIONALE -
10,586 acres recommended for wilderness
6,893 acres recommended for nonwilderness

The recommendation is to designate 10,586 acres of public land as wilderness, and to release 6,893 acres of public land for uses other than wilderness. It also is recommended that negotiations take place to determine the feasibility of acquiring, by exchange, two state land parcels (totaling 1,280 acres) and one private parcel (40 acres). The addition of these tracts, which lie outside and adjacent to the proposed wilderness boundary, would improve wilderness manageability and quality. These lands contain high wilderness values and should become part of the wilderness area if acquired. Their acquisition would topographically unify the recommended area by extending it along the crest of the range, which is a natural route of travel.

The major factors considered in the recommendation are wilderness quality, conflicts with mineral development, and an existing management that protects the important resource values of the WSA. The all-wilderness alternative is considered the environmentally preferred alternative, as it would cause the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The 10,586 acres recommended for wilderness designation encompass the rugged north face of the Blacktail Mountains, the crest of the range, and over 2,000 acres south of the crest in open, rolling terrain. This area's primary wilderness qualities are ecosystem diversity, representation of the foothills prairie ecotype, important wildlife habitats, and excellent opportunities for solitude and unconfined primitive recreation.

Overall, the WSA is in nearly pristine condition. Wilderness designation would aid in the long-term management of significant visual and cultural resources and of important spring-summer-fall deer and elk habitats. Conflicts with mineral and timber development and motorized recreation are minimal. A relatively low increase in operating costs for grazing would occur. A 3,880-acre area in the northwest is not leased for domestic grazing.

The 6,893 acres not recommended for wilderness are situated in the lower half of the WSA. The narrow, irregular configurations of this portion would substantially limit opportunities for solitude, and use conflicts could arise from mineral development activities by the Jake Canyon-Silver Queen mining claims group. The recommendation would allow for development of mineral resources with high potential for occurrence.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory concluded that the WSA is primarily natural in appearance, with the few human imprints limited mainly to the open western and southern slopes. This WSA contains fewer than 8 miles of vehicle ways, of which about 3.5 miles are within one-quarter mile of the boundary. (Most other imprints also lie that close to the boundaries.) A low to moderate impact exists in the bottom of Ashbough Canyon and in the bottom of the North Fork of Jake Canyon where timber was harvested early in the 1900s. Overall, the WSA is in a nearly pristine condition.

Solitude: The intensive inventory concluded that the WSA's vegetative and topographic diversity afford outstanding opportunities for solitude.

Topographic relief varies from about 6,200 feet at the mouth of Irishman's Hole to 9,477 feet at the top of an unnamed peak near the center of the WSA. Terrain in most of the WSA is steep and well dissected. All or parts of the headwaters of ten major drainages are within the WSA; many smaller water courses originate within the study area as well. Timber, which grows mainly in the drainages, provides excellent screening in these areas.

In general, topography and vegetation combine to provide superb screening in most of the WSA. The many canyons help disperse visitors, and the lack of significant outside sights and sounds adds to the sense of isolation. All these factors contribute to the fine opportunities for solitude. Only in the southeast finger of the WSA are these opportunities restricted, due to the narrow corridor which, at some locations, is less than one mile wide. Opportunities for maintaining solitude in this lower portion are limited.

Primitive and Unconfined Recreation: The diversity of the WSA provides many chances for primitive and unconfined types of recreation. Backpacking, camping, and big game hunting probably are the major attractions; the opportunities for day hiking, horseback riding, sightseeing, nature study, and rockhounding also are excellent. Snowshoeing and cross-country skiing would be good in winter. The steep slopes and cliffs of the drainages make cross-country travel difficult and challenging. All these factors combine to provide high-quality opportunities for primitive and unconfined recreation.

Special Features: The five peaks higher than 9,000 feet offer outstanding panoramic views, some exceeding 80 miles on a clear day. Scenic quality and variety within the unit are outstanding, with cliffs and freestanding rock walls, timbered slopes, cirque basins, and rolling subalpine terrain.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The WSA is located within the Rocky Mountain Forest Province/Douglas Fir Forest M3110/11. There are currently seventeen areas of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation (July 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
	NATIONWIDE			
Rocky Mountain Forest Province/Douglas Fir Forest	17	1,345,741	12	98,328
MONTANA				
Rocky Mountain Forest Province/Douglas Fir Forest	0	0	10	85,361

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Blacktail Mountains WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

Overall, there are no major impacts on long-term effective management of the Blacktail Mountains WSA as wilderness. As previously discussed, however, opportunities exist to improve the management situation and the WSA's quality through exchange for state and private lands. For example, the E 1/2 of Section 10 and the W 1/2 of Section 11, T.10 S, R.8 W, which are owned by the state of Montana, are at the head of Riley Canyon and at the crest of the Blacktail Range. The state-owned Section 32, T.9 S, R.8 W, and the privately owned NE 1/4 NW 1/4 of Section 5, T.10 S, R.8 W, encompass another part of the Blacktail Range crest and the head of Ashbough Canyon. BLM acquisition of these parcels would bring the entire ridge (which is a natural travel route) and the heads of two major canyons into the WSA. It also would make possible the use of recognizable natural and constructed features as boundaries.

Energy and Mineral Resource Values

The Geological Survey and Bureau of Mines prepared a mineral assessment for the northern portion of the Blacktail Mountains WSA in 1987. The mineral potential of the southern portion of the WSA was not assessed by USGS or the Bureau of Mines. This assessment describes the overall mineral potential of the WSA as low, with two exceptions. The vicinity of the fault along the northeast face of the Blacktail Range has good potential for small, structurally controlled deposits of silver, copper, and gold; and an area in Jake Canyon holds moderate potential for silver and nickel.

The area of mineral potential along the Blacktail Fault occurs at the northern edge of the study unit. Most of the area with mineral potential probably lies outside the WSA or just inside its boundaries. There are about 30 mining claims in and adjacent to the studied part of the WSA which are currently active (1990). Of these, about 10 are inside the WSA boundary.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation, nondesignation, or partial designation of the WSA as wilderness.

Table 4
Comparative Summary of Impacts - Blacktail Mountains WSA

Issue	Proposed Action (Partial Wilderness)	All-Wilderness Alternative	No-Wilderness/No-Action Alternative
Impacts on Wilderness Values	Wilderness quality and the ability to maintain wilderness values would be improved over current conditions on about half the area. Key scenic spots and areas with best natural character and opportunities solitude would be preserved.	Designation of the WSA would preserve outstanding recreational, scenic, and wilderness values. The narrow southeast finger of the the WSA limits opportunities for solitude.	The harvest of timber and the development of minerals particularly in the south and east portions of the area would reduce the solitude, naturalness, and primitive recreation opportunities.
Impacts on Recreation	The quality of semi-primitive recreation would be adversely affected because of mining and motorized access. Fewer than 100 RVDs per year would be affected.	Primitive recreation values would be retained and impacts to motorized recreation would involve fewer than 100 RVDs per year.	In the short term, existing primitive recreation values probably will be retained. In the long term, primitive recreation would lessen and motorized recreation would increase.
Impacts on Big Game Wildlife Habitat	The major portion of crucial elk and deer winter range would be outside the wilderness area.	The net impacts on wildlife would be beneficial, particularly for elk winter range.	There would be short-term habitat protection, but no guaranteed long-term protection if timber or mineral development occurs.
Impacts on Mineral Development	Impact on minerals development is minor. The highest-value mineral areas would lie outside the wilderness boundary.	This alternative might significantly affect the availability for exploration with a high potential for gold and silver and a fair potential for nickel.	No impact.
Impacts on Livestock Levels	There would be no significant impacts or changes to proposed range improvements or stocking levels.	There would be no change in present livestock-use levels. A long-term increase of 75 AUMs would be foregone.	This alternative would increase the number of AUMs available for livestock in the long run.
Impacts on Forest Harvest Levels and Timber Economics	The most productive timber sites in the WSA would be available for harvest. No significant impact.	The proposed action will not change the potential of the land for forest growth, but it would eliminate a harvest of 2.8 mmbf per decade from the sustained yield base.	This alternative would have no impact on timber harvest levels.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement has occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved the adverse effects of wilderness designation on grazing permittees, mineral extraction, timber harvest, and adjacent land uses. Also deferred were comments on the benefits of wilderness for wildlife.

During formal public review of the Draft EIS, a total of fifty-one comments was received on the Blacktail Mountains WSA. Twelve comments supported the BLM proposal for partial wilderness, while thirty-one opposed wilderness designation. Four respondents favored wilderness for the entire area under study. Two proposed new alternatives that would expand the size of the proposed wilderness, while one proposed an alternative that would reduce the size of the area. One comment addressed adjacent state lands only, and gave no clear opinion.

Those in favor of all or partial wilderness believed that the area has significant wilderness value, and that wildlife habitat would benefit from designation. Respondents also expressed the belief that grazing operations would not be harmed by designation; that there is a need for public access to the area; and that BLM should initiate a land-exchange program with the state to consolidate ownership.

Those opposing wilderness designation were primarily concerned with the effects on grazing operations in the area, particularly on one permittee. Eighteen comments mentioned this concern. Several respondents believed grazing and wilderness are not compatible. Others felt that the area has mineral potential; that there would be adverse effects on state lands; that the area should not be proposed when no public access exists; and that the area lacks outstanding wilderness characteristics.

No federal, state, or local agencies submitted any WSA-specific comments.

EAST FORK OF BLACKTAIL DEER CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 6,230 Acres

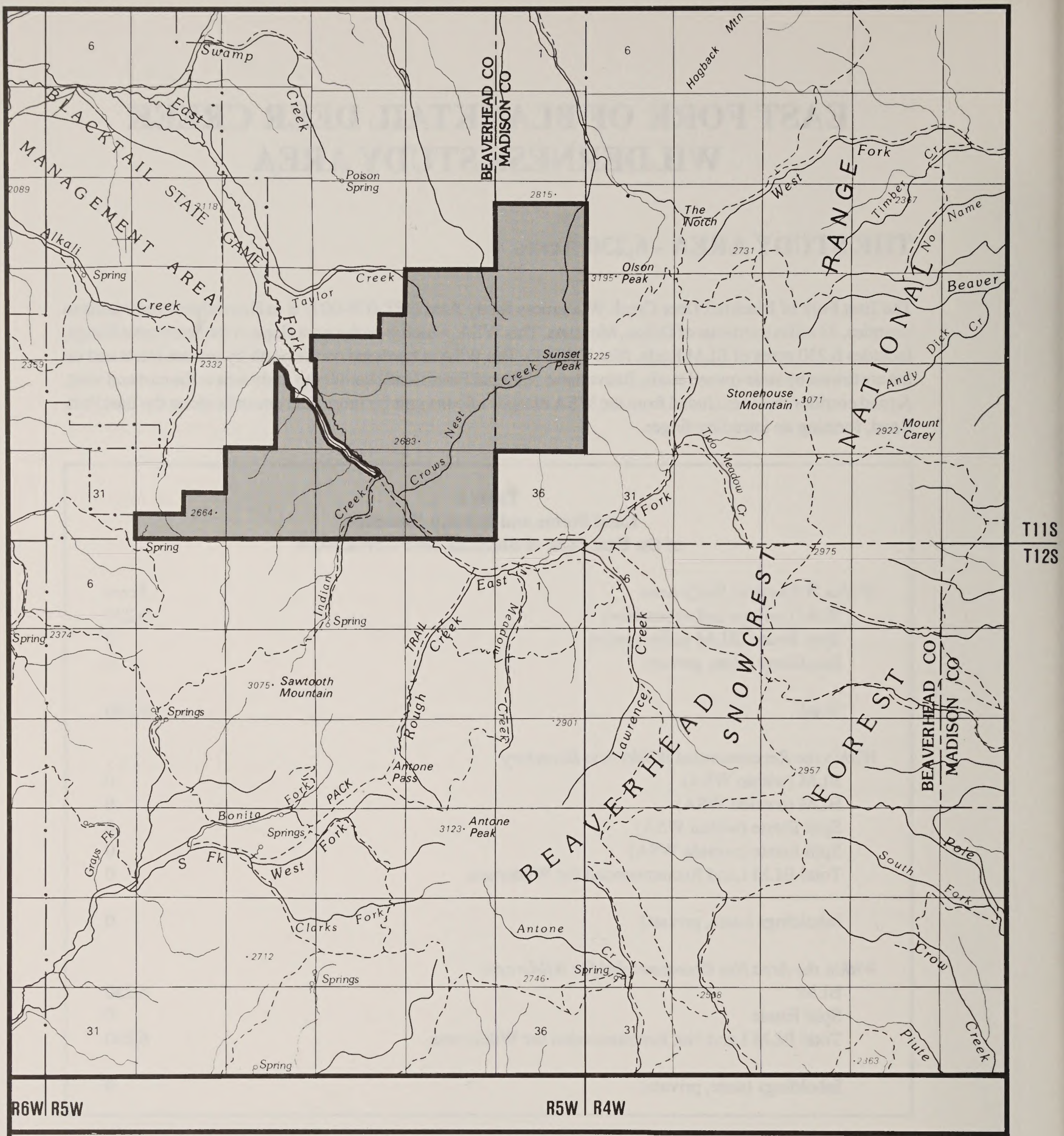
The East Fork of Blacktail Deer Creek Wilderness Study Area (MT-076-007) is in Beaverhead and Madison counties, 33 miles southeast of Dillon, Montana. This WSA, which is on the west slope of the Snowcrest Range, includes 6,230 acres of BLM lands. (See Table 1). The WSA is bordered on the north by private tracts and on the northwest by state-owned lands; Beaverhead National Forest lands border the study area to the east and west. A road corridor that is excluded from the WSA extends into the unit for more than one mile along the East Fork Road, forming an intruding finger.

Table 1
Land Status and Acreage Summary
of the East Fork of Blacktail Deer Creek WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	6,230
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	6,230
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	6,230
Split Estate	0
Total BLM Land Not Recommended for Wilderness	6,230
Inholdings (state, private)	0

The WSA is dominated by three large drainages: Robb Creek, the East Fork of Blacktail Deer Creek, and Crows Nest Creek (which flows into the East Fork). Only one of these, three-mile-long Crows Nest Creek, is entirely enclosed by the WSA boundaries. The WSA contains portions of Taylor, Rock, Indian, and Alkali creeks, plus several smaller streams that flow directly into the East Fork. The WSA displays open sagebrush foothills, grass parks, aspen and willow groves, alpine meadows, barren talus slopes, and Douglas fir and limber pine forests.

The East Fork WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987. The EIS analyzed two alternatives: no wilderness and all wilderness.


Swamp
East
Creek
Poison Spring
BLACKTAIL STATE GAME MANAGEMENT AREA
Alkali
Spring
Creek
Taylor
Creek
Fork
BEAVERHEAD CO
MADISON CO
Hogback Mtn
Fork
West
The Notch
Timber
Cr
No Name
Beaver
Olson Peak
Sunset Peak
Creek
Nest
Crows
Creek
Stonehouse Mountain
Andy
Dick
Cr
Mount Carey
Two Meadow Cr
Fork
RANGE
NATIONAL
FOREST
SNOWCREST
BEAVERHEAD
East
Creek
Meadow
Creek
Rough
TRAIL
Indian
Spring
Sawtooth Mountain
Springs
Lawrence
Creek
Antone Pass
Antone Peak
PACK
Fork
Bonita
Springs
Fork
West
S Fk
Grays Fk
Clarks
Fork
Antone
Cr
Spring
Springs
Spring
Pole
South
Fork
Crow
Piute
Creek
2089
2118
2332
2359
2374
2664
2683
2815
3195
3225
2731
2367
3071
2922
2975
3075
2901
2957
3123
2712
2746
2508
2363
6
1
6
31
36
31
6
1
6
31
36
31
T11S
T12S
R6W
R5W
R5W
R4W
BEAVERHEAD CO
MADISON CO

NONE	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

N

East Fork Blacktail Deer Cr. Proposal

0 1 2 3 Miles

0 1 2 3 4 5 Kilometers

MT-076-007
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

6,230 acres recommended for nonwilderness

The recommendation is not to designate the WSA as wilderness, and to release the area for uses other than wilderness. The all-wilderness alternative is considered the environmentally preferred alternative, as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The major factors considered in making the recommendation not to designate the WSA as wilderness are the area's small size and management's desire to keep the centrally located Cherry-stemmed road open to provide motorized access to the area, primarily for hunting. In addition, existing management policies protect the important natural values of the area, and no surface disturbing projects that would impact the existing level of wilderness values in the WSA are projected.

Although the WSA contains special features — wildlife habitat, scenic quality, and a diversity of vegetative types — its small size and the internal road corridor along the East Fork limit opportunities for solitude and primitive recreation. The road corridor also was considered a significant concern for management of the area as wilderness. The regular use that the road corridor receives, periodically eliminates solitude opportunities in parts of the small WSA.

Current management consists of restrictions on surface occupancy for mineral leases, prohibition of timber harvest, ORV restrictions, and a wildlife habitat management plan. Each of these management actions protect the WSA's special features. There are also no surface disturbing activities projected for the WSA in the future.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The WSA is primarily natural in character. Vehicle ways totaling less than 3 miles extend into the unit for short distances. Most of the 3.5 miles of fence are adjacent to the boundary.

Solitude: The intensive inventory concluded that excellent vegetative screening and topographic diversity in the WSA create outstanding opportunities for solitude. Most of the terrain is well dissected. Timber and aspen-willow groves occupy about 60 percent of the WSA, providing pockets of seclusion among the interspersed meadows and parks. The small size of the WSA, however, and the cherrystem road corridor substantially reduce the opportunities for solitude.

Primitive and Unconfined Recreation: The WSA offers a diversity of outstanding recreation opportunities, including hunting, hiking, and backpacking. Horseback riding also is possible, but is limited by the steep topography. A feature of interest to visitors is the variety of plant communities, ranging from grass-sagebrush to alpine, that can be seen in a short distance. Chances to observe and photograph wildlife are excellent: Elk, mule deer, moose, black bear, and mountain goats use the area. The East Fork offers some of the most outstanding elk hunting in southwestern Montana.

The physical features in the WSA are conducive to excellent recreation. However, these opportunities and the unit's carrying capacity are adversely affected by the cherrystem road corridor along the East Fork and by the small size of the WSA.

The road up the East Fork drainage effectively divides the WSA into two areas with about one-third of the WSA southwest of the road and two-thirds on the northeast side.

Special Features: The WSA contains important spring-summer-fall elk range and elk calving habitat, complementing the adjacent Blacktail Game Range, which serves primarily as winter range for elk.

Excellent scenery, including views of the high Snowcrest peaks and the diverse vegetative patterns in the WSA, is an important special feature.

Diversity in the National Wilderness Preservation System

Assessing the diversity of natural systems and features as represented by ecosystems: This WSA is located within the Rocky Mountain Forest Province/Douglas Fir Forest M3110/11. There are currently seventeen areas of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	17	1,345,741	12	98,328
MONTANA				
Rocky Mountain Forest Province/Douglas Fir Forest	0	0	10	96,610

Expanding the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The East Fork of Blacktail Deer Creek WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness

Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The area is manageable as wilderness; however, the road corridor is considered a significant administrative problem in that expected increased motor vehicle use along this route would limit solitude opportunities.

Energy and Mineral Resource Values

The overall mineral potential of this WSA is rated low for both locatable and leasable minerals by BLM geologists.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and the alternatives considered: designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - East Fork of Blacktail Deer Creek

Issues	Proposed Action (No Wilderness/No Action)	All-Wilderness Alternative
Impacts on Wilderness Values	If development of minerals and timber occurred, the solitude, naturalness, and primitive recreation opportunities of the area would be reduced, but none is projected.	Closing the East Fork Road would improve the wilderness quality of the WSA. Closure would better protect wildlife from hunting pressure and would improve the area's solitude.
Impacts on Recreation	The fringes of the primitive portions of the area would receive some over-use due to hunters and others using the East Fork Road.	An estimated 845 RVDs would be lost.
Impacts on Big Game Wildlife	Wildlife habitat would retain short-term protection from oil and gas leases, timber harvest, and ORV travel — but would have no long-term habitat protection guarantee.	Elk and deer habitats would be fully protected.
Impacts on Mineral Development	Wildlife oil and gas stipulations are in effect. The WSA would remain open to locatable mineral development.	This alternative should not have a major impact on mineral exploration and development due to the lack of potential.

Impacts on Livestock Levels	No impact.	There would be no significant impacts to proposed range improvements or stocking levels.
Impacts on Forest Harvest Levels and Timber Economics	In accordance with the current land-use plan, harvest of timber could occur if beneficial to wildlife habitat management.	This alternative will not change the potential of the land for forest growth. Ingrowth will approximately equal mortality. As long as the area remains wilderness, the harvest of 800 mbf/decade in forest products is forgone.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public comment occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved benefits and adverse effects of wilderness designation on wildlife habitat, manageability concerns, and timber and oil and gas potential of the area.

During formal public review of the Draft EIS, a total of twenty-four comments was received that specifically mentioned the East Fork WSA. Fourteen of these favored wilderness designation, seven favored the nonwilderness proposal, and three favored alternative management, such as making the unit an area of critical environmental concern or "backcountry."

Most of the individuals favoring wilderness believed designation would benefit important wildlife habitats in and adjacent to the WSA, and mentioned the importance of managing the area in conjunction with the adjacent Beaverhead National Forest and Blacktail Game Range lands. Four individuals proposed a combined BLM-Forest Service wilderness or wilderness study. Three suggested that a wilderness alternative be considered that would not close the East Fork Road. Two other respondents indicated they favored wilderness because there was no assurance the area would be managed as an ACEC.

Most of those in favor of the preferred alternative, no wilderness, believed the area was too small and not manageable as wilderness. One comment mentioned mineral potential in the area, and one favored nonwilderness management for a full range of uses, rather than as an ACEC.

No federal, state, or local agencies submitted any WSA-specific comments.

HIDDEN PASTURE CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 15,509 Acres

The Hidden Pasture Creek Wilderness Study Area (MT-076-022) is in Beaverhead County, 40 miles south of Dillon, Montana. This WSA includes 15,509 acres of BLM lands and a 640-acre inholding administered by the Montana Department of State Lands. (See Table 1.) The west and south sides of the WSA are bordered by gravel roads, and the north side abuts National Forest lands. The east side is bounded by private land. (See WSA map.)

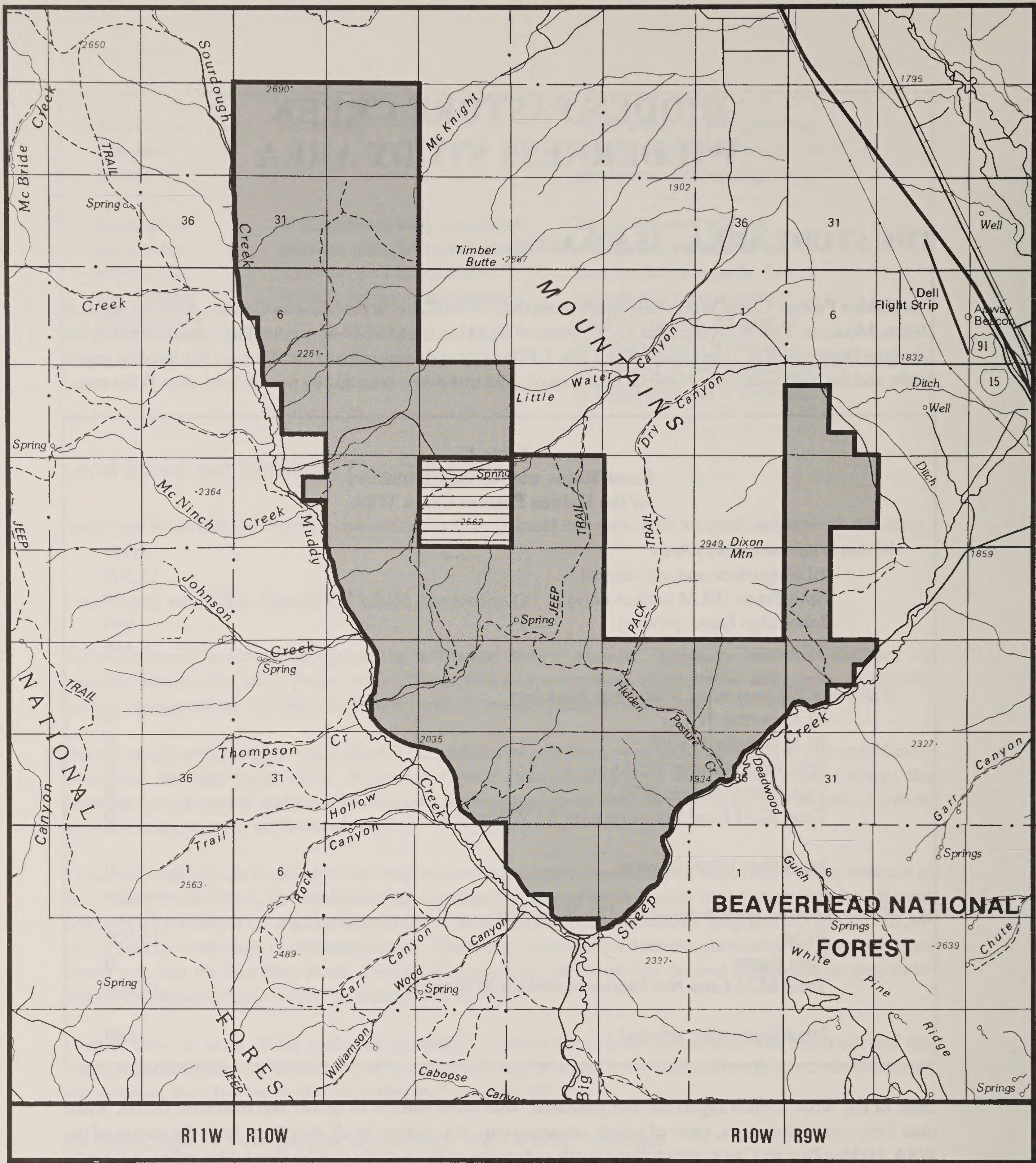
Table 1
Land Status and Acreage Summary
of the Hidden Pasture Creek WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	15,509
Split Estate (BLM surface only)	0
Inholdings (state, private)	640
Total	16,149
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	15,509
Split Estate	0
Total BLM Land Not Recommended for Wilderness	15,509
Inholdings (state, private)	640

Most of the WSA is open sagebrush and grassland, with some patches of timber and mountain shrubs. More than forty minor drainages, most of which are seasonally dry, radiate in all directions from the center of the WSA. Hidden Pasture Creek, which flows south and southeast through the unit for about three miles, is the only major drainage. Elevations range from 5,980 feet near the eastern edge to 8,825 feet near the northern boundary.

The Hidden Pasture Creek WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987.

The EIS analyzed two alternatives: A no-wilderness option which is the recommendation in this report, and an all-wilderness alternative.



Sourdough Creek
McBride Creek
McKnight
TRAIL
Spring
36
31
36
31
T12S
T13S
Timber Butte 2887
MOUNTAINS
Creek
1
6
1
6
2690
2650
1795
1902
2251
Little Water Canyon
Dry Canyon
Dell Flight Strip
Airway Beacon
Well
91
15
1832
Ditch
Well
Ditch
Spring
McNinch Creek
2364
JEEP
Muddy
Spring
2562
TRAIL
TRAIL
2949 Dixon Mtn
1859
Johnson Creek
Spring
JEEP
Spring
PACK
NATIONAL
TRAIL
Hidden Pasture Cr
Creek
2035
2327
Thompson Cr
Canyon
36
31
1934
36
31
Deadwood Gulch
Garr Canyon
Hollow
Creek
T13S
T14S
Trail
Canyon
Springs
1
6
1
6
2563
Rock
BEAVERHEAD NATIONAL FOREST
Canyon
Sheep
Springs
2489
2639
White Pine
Chute
Carr Canyon
Wood
2337
Spring
Spring
FOREST
JEEP
Williamson
Ridge
Caboose Canyon
Big
Springs
R11W
R10W
R10W
R9W

NONE	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
▨	RECOMMENDED FOR NONWILDERNESS	▤	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

Hidden Pasture Creek Proposal

0 1 2 3 Miles

0 1 2 3 4 5 Kilometers

-N-

MT-076-022
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

15,509 acres recommended for nonwilderness

The recommendation is not to designate the WSA as wilderness, and to release the area for uses other than wilderness. (See Map 1.) The all-wilderness alternative is considered the environmentally preferred choice as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The major factors influencing the recommendation are wilderness quality, wilderness management problems, conflicts with oil and gas exploration and development, and an existing management that protects the important resource values of the WSA. The WSA met the minimum requirements for wilderness study. During the study, however, it was determined that the area did not possess the characteristics and quality that would enhance the National Wilderness Preservation System. The WSA contains a large number of human imprints - 21 miles of vehicle ways, 17 miles of fences, and eleven spring developments - which a visitor encounters throughout most of the WSA. Though the development locations, spatial distribution, and topographic relief combine to reduce the cumulative effect, the numerous site-specific developments decrease the overall quality of naturalness in this WSA.

The well-dissected terrain and the absence of year-round water would help to disperse use and provide for solitude. Yet other factors - the short core-to-perimeter distance (one and one-half miles), the relatively easy cross-country travel, and the sparse vegetative screening on the 80 percent of the WSA that is open sagebrush and grassland - substantially limit the opportunities for solitude.

The WSA is well suited to cross-country hiking, horseback riding, and hunting (for deer, elk and antelope). However, neither the diversity of opportunities nor the quality of any one opportunity is outstanding.

The WSA does not add to the diversity in the National Wilderness Preservation System. The ecosystems in the WSA are widely represented in designated wilderness areas, and the WSA is located in an area of unusually rich wilderness opportunities: Montana contains 3,431,339 acres in sixteen designated wilderness areas.

The WSA could be managed for wilderness, but substantial personnel for enforcement would be required. The greatest problems would occur during hunting season. Serious administrative or enforcement problems would result from the combination of the WSA's short core-to-perimeter distance and the lack of physical barriers to control motorized entry. An added concern is that substantial portions of the WSA boundary are difficult to identify. Moreover, the grandfathered right to use motor vehicles to maintain many existing range improvements would present long-term nonconforming uses. The minimum maintenance tool necessary for a significant number of range improvements would be a backhoe.

Source bed and reservoir rocks, and interest shown by industry, indicate the WSA may have good potential for oil and gas.

Off-road vehicles are currently restricted to existing ways and trails in the WSA by an ORV travel plan. The ORV restrictions provide security for elk during hunting season and on their winter game range, and help to protect the WSA's unstable soils. Also, the WSA and an adjoining area have been proposed for designation as an area of critical environmental concern. Under the proposed action, more intensive management could be directed at the WSA's natural resource values, including cultural and wildlife resources and any associated problems.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory recognized that the Hidden Pasture Creek WSA exhibits a large number of human imprints (including more than 21 miles of vehicle ways, about 17 miles of fences, and eleven spring developments), but concluded that topographic relief acts to screen their cumulative effects.

Sagebrush spraying was done on approximately 9,500 acres in the northern part of the WSA in the early 1960s. At about the same time, contour furrowing was done in nine separate areas totaling 722 acres. The effects of these activities are no longer readily apparent.

Though the number of impacts on naturalness is high, their locations and spatial distribution help to mitigate their cumulative impact on the apparent naturalness of the WSA. However, a visitor could not travel more than a short distance without encountering a number of these impacts. Thus, while the WSA as a whole was evaluated as natural in appearance, it displays many site-specific impacts to naturalness.

Solitude: The core-to-perimeter distance in this WSA is approximately one and one-half miles. Though cross-country travel is not difficult because most drainages are shallow, use is likely to be dispersed because of the absence of any year-round water sources or other attractions.

Terrain is rolling and moderately well dissected in about 80 percent of the WSA, well dissected in 15 percent, and relatively undissected in 5 percent. Little vegetative screening exists in the 80 percent of the area that is open sagebrush and grassland. Vegetative screening is greater in the forested and shrub areas of the WSA's southeastern portion.

Much of the WSA slopes toward nonwilderness lands. Off-site vistas are primarily undeveloped private, state, and federal lands; occasionally views of irrigated ranch lands appear. While these views have only a slight impact on the visitor's sense of solitude, prime opportunities for solitude generally remain few in the sparsely vegetated and easily travelled terrain.

Primitive and Unconfined Recreation: The intensive inventory found that the WSA did not have outstanding opportunities for primitive types of recreation. It however is well suited to cross-country hiking, horseback riding, and hunting for elk, deer, and antelope. Most use would probably be for short visits because of the area's size and lack of surface water. The terrain does not make cross-country travel particularly challenging. The present use of this WSA is low, at fewer than 500 visitor days a year, primarily because of the lack of significant attractions or recreation opportunities. Overall, though the area offers possibilities for some types of primitive recreation, neither the diversity of opportunities nor the quality of any one opportunity is outstanding.

Special Features: The one special feature in the WSA is an expanding bighorn sheep herd.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is located in the Rocky Mountain Forest Province/Sagebrush Steppe M3110/49 ecotype. There are currently four representatives of this ecotype in the National Wilderness Preservation System, and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Rocky Mountain Forest Province/Sagebrush Steppe	2	40,784	2	212,878
MONTANA				
Rocky Mountain Forest Province/Sagebrush Steppe	2	35,345	2	19,456

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	areas	acres	areas	acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Hidden Pasture WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The WSA could be managed for wilderness, but it would require substantial funds and manpower to sign and patrol. WSA boundaries that form the borders between BLM-administered land and nonpublic or National Forest lands are difficult to identify due to a lack of special vegetative or topographic features. The short core-to-perimeter distance - one and one-half miles - and the few physical barriers to motorized travel would pose long-term management problems.

Energy and Mineral Resource Values

The WSA holds no known locatable minerals, and no unpatented mining claims have been recorded. A mineral report prepared by Montana BLM in support of the Dillon wilderness plan amendment/EIS states that the interest shown by industry suggests that the WSA has good oil and gas potential.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Hidden Pasture WSA

Issue	**Proposed Action - (No Wilderness/No Action)**	**All-Wilderness Alternative**
Impacts on Wilderness Values	Opportunities for primitive recreation and naturalness would be reduced by roading.	Wilderness designation would protect existing habitat for elk, mule deer and antelope, would limit use on unstable soils in the area, and would maintain existing levels of naturalness.
Impacts on Recreation	No impact on motorized recreation activities.	Use of motorized vehicles, particularly by hunters, would cease. A reduction of fewer than 100 RVDs per year would occur.
Impacts on Big Game Wildlife Habitat	Mineral development would adversely impact elk, deer and sheep habitats.	Bighorn sheep, elk, antelope and sage grouse would benefit substantially, due to constraints on land treatment and vehicle access. Mule deer could be adversely affected during periods of abundance and benefited during times of low populations, due to the reduction in vehicle access for hunters.
Impacts on Mineral Development	No impact on minerals development or exploration. These activities would continue to be regulated to prevent unnecessary and undue degration of the land.	This alternative could have a major impact on oil and gas exploration and development. The WSA's potential for oil and gas is considered good.
Impacts on Livestock Use Levels	Range improvements and stocking levels would be based on the Mountain Foothills EIS and would not be changed or differ significantly from present levels.	There would be no significant changes or impacts to proposed range improvements or stocking levels. Existing levels would be maintained and no projected increases would be foregone.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Inventory comments deferred for consideration until the study phase involved the use of inholdings and the need to protect important wildlife habitats.

During formal public reviews of the draft EIS, a total of sixteen comments was received that specifically mentioned the Hidden Pasture Creek WSA. In general, nine agreed with the nonwilderness recommendation, six favored wilderness designation, and one expressed no clear opinion.

Most of those favoring nonwilderness believed the area holds low wilderness value and high oil and gas and other mineral potential.

Those favoring wilderness felt the area has high wilderness values, particularly in conjunction with adjacent undeveloped National Forest lands. Three respondents felt a joint BLM-FS wilderness should be considered.

One respondent proposed a partial-wilderness alternative that would include most of the WSA as wilderness.

No federal, state, or local agencies submitted any WSA-specific comments.

BELL AND LIMEKILN CANYONS WILDERNESS STUDY AREA

THE STUDY AREA - 9,650 acres

The Bell-Limekiln Canyons Wilderness Study Area (MT-076-026) is in Beaverhead County at the north end of the Tendoy Mountains, 25 miles southwest of Dillon, Montana. The WSA includes 9,650 acres of BLM lands and a 160-acre private inholding near the center of the unit. (See Table 1.)

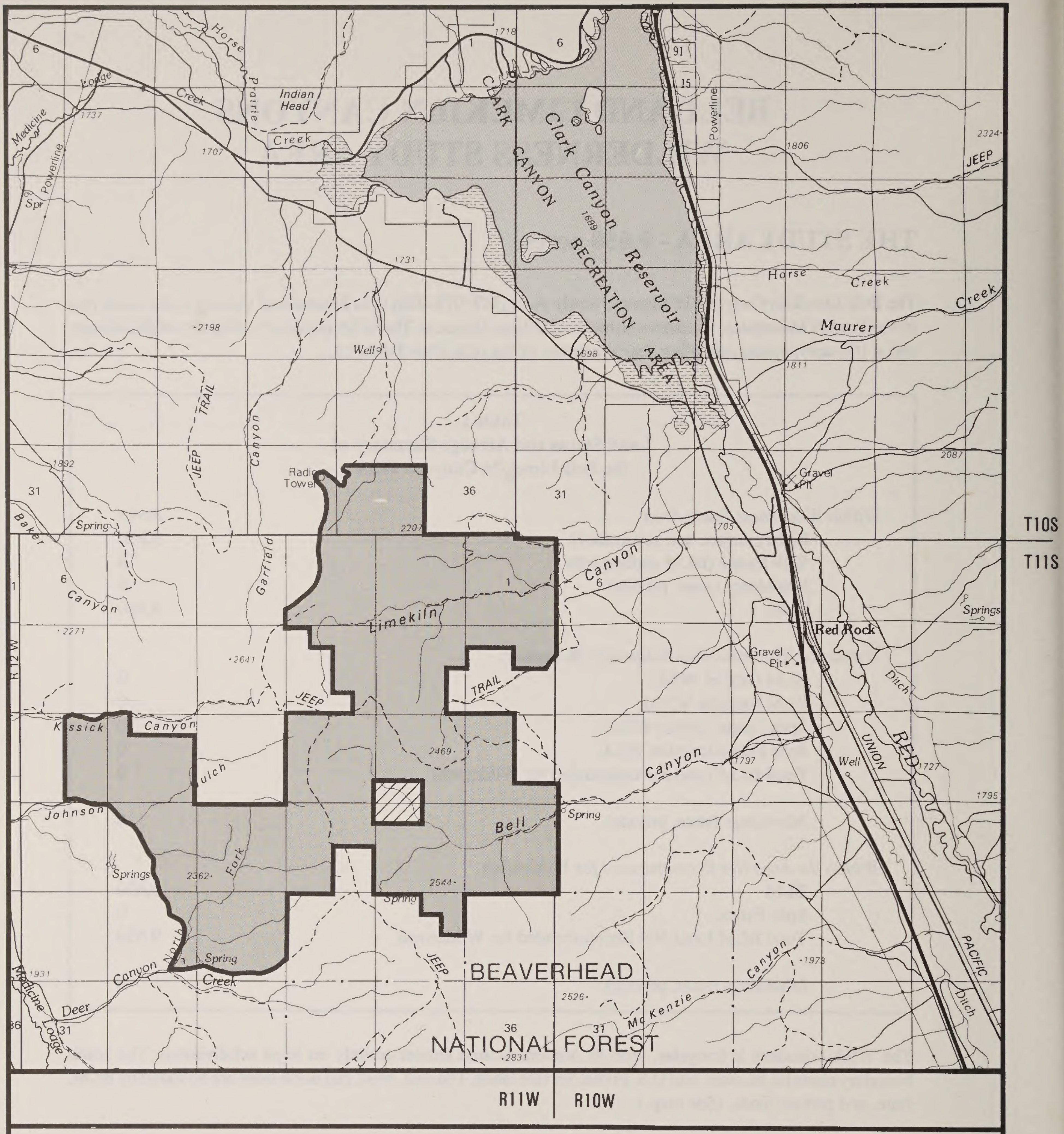
Table 1
Land Status and Acreage Summary of
the Bell-Limekiln Canyons WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	9,650
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	9,650
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	9,650
Split Estate	0
Total BLM Land Not Recommended for Wilderness	9,650
Inholdings (state, private)	0

The WSA boundary is irregular, with its borders located almost entirely on legal subdivisions. The south boundary abuts BLM, state, and U.S. Forest Service lands. The east, west, and north sides are bounded by BLM, state, and private lands. (See map.)

The area is a mosaic of grass, sagebrush, forested ridges, canyons, and slopes. The steep, rugged Bell and Limekiln canyons dominate the topography of the east side of the WSA. To a lesser degree, forks of Deer Canyon and Johnson Gulch dominate the southwestern part. All drainages are seasonally dry except for some springs in Bell Canyon and Limekiln Canyon.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement finalized in February 1987. The EIS analyzed two alternatives: no wilderness and all wilderness.


Clark Canyon Reservoir
CLARK CANYON RECREATION AREA
Horse Prairie Creek
Indian Head
Medicine Lodge Creek
Powerline
91
15
Horse Creek
Maurer Creek
JEEP
Well
JEEP TRAIL
Canyon
Radio Tower
Gravel Pit
Baker Canyon
Spring
Garfield
Limekiln Canyon
Red Rock
Ditch
TRAIL
Kissick Canyon
Gulch
Johnson Fork
Bell Canyon
Spring
Springs
North Canyon Creek
UNION PACIFIC
RED
McKenzie Canyon
Deer
BEAVERHEAD NATIONAL FOREST
T10S
T11S
R12W
R11W
R10W
1718
1737
1707
1806
2324
1689
1731
2198
1698
1811
1892
2087
2207
1705
2271
2641
2469
1797
1727
1795
2362
2544
1931
1973
2526
2831

NONE	RECOMMENDED FOR WILDERNESS
▩	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
▨	PRIVATE

-N-

Bell/Limekiln Canyons Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

MT-076-026
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

9,650 acres recommended for nonwilderness

The recommendation for this WSA is not to designate the area wilderness, and to release the area for uses other than wilderness. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts. The major factors influencing the recommendation are wilderness quality, wilderness management problems, and conflicts with oil and gas exploration and development.

Though the WSA offers relatively high-quality scenic values and excellent mule deer range, its poor configuration and irregular boundaries severely limit opportunities for solitude and primitive recreation.

A manageability issue exists with an inholding in Bell Canyon, a primary recreation attraction to which the landowner has sought a constructed access. If that occurs, constructed road access and timber harvest would diminish natural values and solitude opportunities in Bell Canyon, one of the areas with the best wilderness values. Substantial enforcement or administrative problems will also result from WSA borders being based on irregular legal lines, rather than on topographic boundaries.

Source bed and reservoir rocks and interest shown by industry indicate the WSA may have good potential for oil and gas. The recommendation would allow for future exploration and development of these resources.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory concluded that the area, after boundary adjustments, contained relatively minor impacts on naturalness. The 14 miles of vehicle ways and more than 4 miles of fence are distributed throughout the WSA. Much of the fencing and two of the vehicle ways are fairly noticeable because of their location in open terrain, but the dissected topography and forest cover in the canyons provide adequate screening from most impacts in these areas.

Though the imprints are relatively light and well distributed, a visitor cannot travel any great distance without contacting some sign of human influence. The WSA appears basically natural in character, but the cumulative effect of existing imprints has resulted in a reduction of the quality of the WSA's naturalness.

Solitude: The intensive inventory concluded that, because of its broken topography and canyon vegetation, the WSA offers outstanding opportunities for solitude. That potential, however, is limited by the irregular, narrow configuration. Nowhere is the WSA more than 3 miles wide, and its width narrows to 1 mile or less in three places. This irregular shape means that some natural topographic routes of travel between points in the WSA pass outside the unit.

Vegetative screening within the canyons is excellent. Douglas fir and tall shrub cover in the canyons provide for visitor seclusion. Ridges and south slopes are generally open, however, and visibility is typically great from ridge to ridge across the deep drainages.

Primitive and Unconfined Recreation: Back country travel and sightseeing in varied scenery, rock climbing, skiing, and snowshoeing are among the recreational opportunities in this WSA. Excellent mule deer hunting and good elk hunting are also available. Primitive recreation opportunities are diverse for an area of this size; however, its small-to-moderate extent and poor configuration limit the quality of these opportunities.

Special Features: Though the final EIS mentioned mule deer hunting and geologic formations as important features, they are not considered significant.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is located in the Rocky Mountain Forest Province/Sagebrush Steppe M 3110/49 ecotype. There are currently four representatives of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
	NATIONWIDE			
Rocky Mountain Forest Province/Sagebrush Steppe	2	40,784	20	212,878
	MONTANA			
Rocky Mountain Forest Province/Sagebrush Steppe	2	35,345	2	25,315

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents
of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Bell-Limekiln WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (The area must be capable of being effectively managed to preserve its wilderness character):

The WSA could not be effectively managed to retain existing levels of wilderness quality. There is an existing application for constructed vehicle access to remove timber from the inholding near the center of the WSA in one of the area's scenic canyons. If that occurred, constructed access and timber harvest would have a major effect on wilderness quality in Bell Canyon, one of the primary attractions in the WSA.

The WSA borders are based on irregular legal boundaries, rather than on more easily identifiable topographic lines. This problem, plus the existence of several vehicle travel routes that weave in and out of the unit, severely limits effective management of the area for wilderness purposes.

Energy and Mineral Resource Values

The Bell-Limekiln WSA has only limited potential for locatable minerals, but has moderate potential for oil and gas development according to BLM geologists. Mineral resource potential is moderate for uranium, thorium, and associated radioactive fluorite in the central and western parts of the WSA.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Bell-Limekiln Canyons WSA

Issue	Proposed Action (No Wilderness/No Action)	All-Wilderness Alternative
Impacts on Wilderness Values	Timber harvest, road construction, and oil and gas activity would reduce mule deer habitat and would decrease the area's solitude to the point that primitive recreation opportunities would be reduced or destroyed.	Wilderness designation would protect mule deer habitat. It would provide opportunities for primitive recreation, namely hiking and mule deer hunting.
Impacts on Recreation	There would be no significant impact on motorized recreation.	Motorized recreation primarily by hunters would be affected; 75 RVDs per year would be eliminated.
Impacts on Big Game Wildlife Habitat	There would be a reduction of approximately 2,000 acres of big game habitat if timber harvest or oil and gas development occurs.	Wilderness designation would benefit elk habitat. Bighorn sheep could be introduced and benefit greatly, but mule deer (the species of greatest importance) could be adversely affected.

Impacts on Mineral Development	No impact on minerals exploration and development would occur because the area would remain open to mineral exploration and development under this alternative.	Over the long term, development and exploration for oil and gas would be forgone over the entire unit. The area has good potential for oil and gas.
Impacts on Livestock Levels	Grazing management would be based on the Mountain Foothills EIS, and there would be no impacts on proposed range improvements or stocking levels. These activities would occur without additional restrictions.	Without the prescribed burn, there would be some reduction in range management flexibility but no other impacts on range improvements or stocking levels.
Impacts on Forest Harvest Levels and Timber Economics	If economics allow, 450 mbf of timber per decade could be harvested.	As long as the area remains wilderness, the removal of forest products is not possible. Designation would preclude the potential harvest of an estimated 450 mbf/decade.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Intensive inventory comments deferred for consideration under the study phase involved mineral potential of the area, offsite sounds and sights, the need to study the area in conjunction with Forest Service lands, and benefits of wilderness designation to wildlife.

During formal public review of the draft EIS, a total of fifteen comments was received that specifically mentioned the Bell-Limekiln WSA. Eight agreed with the nonwilderness recommendation, six favored wilderness designation, and one expressed no clear opinion.

Most of those favoring nonwilderness believed the area has low wilderness qualities. One comment mentioned oil and gas potential in the area.

Those favoring wilderness designation for the area believed it has high wilderness value, especially when considered with adjacent undeveloped National Forest lands. Three respondents felt a joint BLM-FS wilderness should be considered.

No federal, state, or local agencies submitted any WSA-specific comments.

HENNEBERRY RIDGE WILDERNESS STUDY AREA

THE STUDY AREA - 9,806 acres

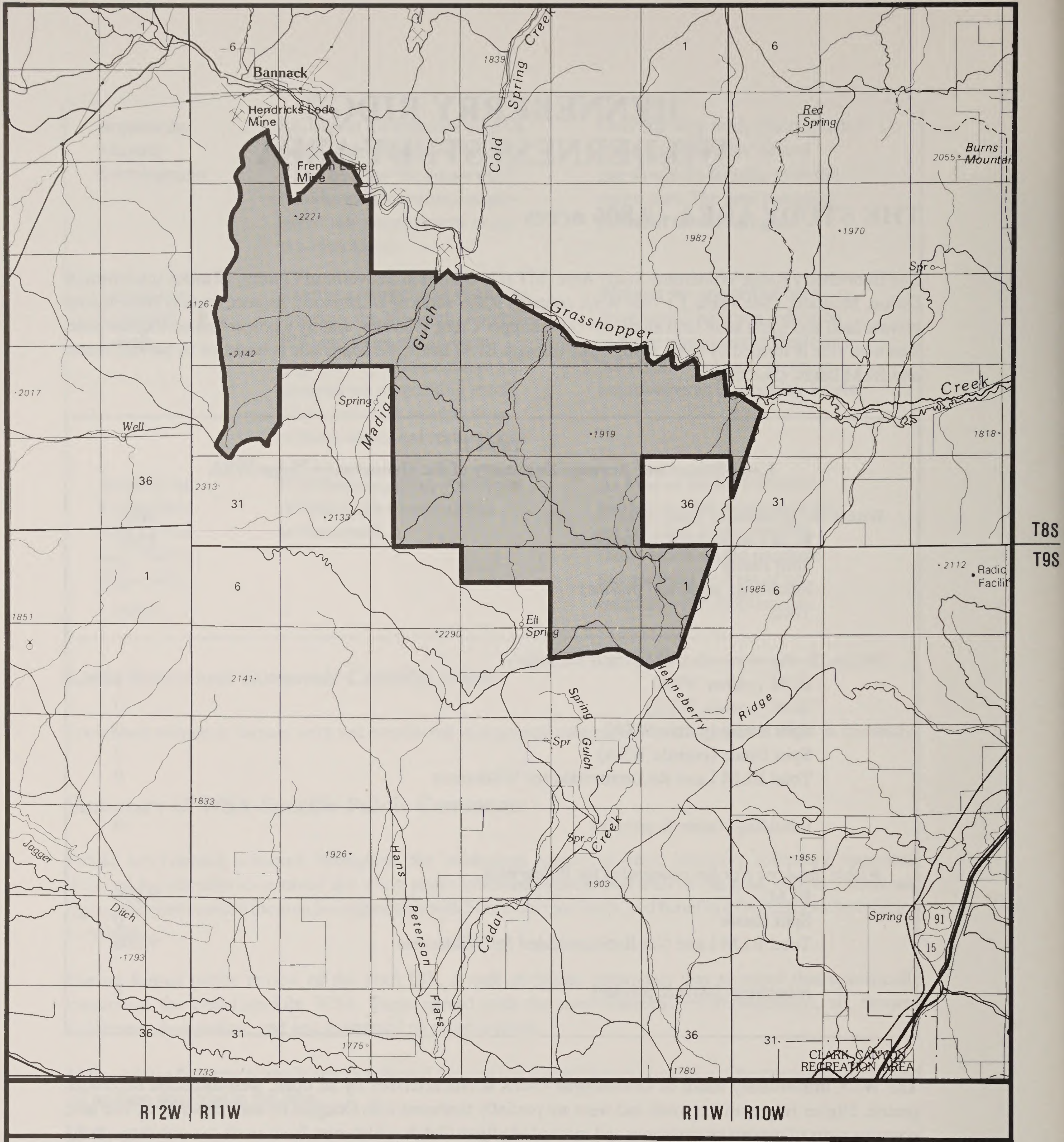
The Henneberry Ridge Wilderness Study Area (MT-076-028) is in Beaverhead County, 12 miles southwest of Dillon, Montana. (See Table 1.) This WSA contains 9,806 acres of BLM lands. Its north side is bordered by private land and some state land along the Grasshopper Creek Corridor, and by a power line on the east side. The west side is formed by steep topography through BLM lands; the south side is bounded by private, state, and BLM lands. (See map.)

Table 1
Land Status and Acreage Summary of the Henneberry Ridge WSA

Within the Wilderness Study Area	*Acres*
BLM (surface and subsurface)	9,806
Split Estate	0
Inholdings (state and private)	0
Total	9,806
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state & private)	0
Within the Area Not Recommended for Wilderness	
BLM	9,806
Split Estate	0
Total BLM Land Not Recommended for Wilderness	9,806
Inholdings (state & private)	0

The WSA immediately south of Grasshopper Creek is characterized by an open, well-dissected sagebrush prairie. Higher ridges on the south and west are partially timbered with Douglas fir and limber pine. The area contains parts of two major drainages and most of Madigan Gulch, which runs from south to north through the center of the WSA. In the unit's prairie portion are a central bench and a maze of small peaks, ridges, and drainages that lead north toward Grasshopper Creek.

This WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987. The EIS analyzed three alternatives; a no wilderness alternative, a partial wilderness alternative which would designate 5,545 acres as wilderness and 4,262 acres as nonwilderness and an all wilderness alternative.


Bannack
Hendricks Lode Mine
French Lode Mine
Cold Spring Creek
1839
Red Spring
Burns Mountain
2055
2221
1982
1970
Spr
2126
Grasshopper Creek
Madigan Gulch
2142
2017
Spring
Well
1919
1818
36
31
2313
2133
36
31
T8S
T9S
2112
Radio Facility
1
6
1985
6
1851
1
Eli Spring
2290
2141
Henneberry Ridge
Spring Gulch
Spr
1833
Spr
Creek
Jagger Ditch
1926
Hans Peterson Flats
1955
1903
Cedar
Spring
91
15
1793
36
31
1775
36
31
1733
1780
CLARK CANYON RECREATION AREA
R12W
R11W
R11W
R10W

NONE	RECOMMENDED FOR WILDERNESS	NONE	SPLIT ESTATE
▨	RECOMMENDED FOR NONWILDERNESS	NONE	STATE
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS	NONE	PRIVATE

Henneberry Ridge Proposal

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

N

MT-076-028
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

9,806 acres recommended for nonwilderness

The recommendation is not to designate the WSA wilderness, and to release the area for uses other than wilderness. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The major factors considered in this recommendation are the potential for some minerals extraction (particularly gold) and implementation of the Rocky Hills AMP which would improve 5,400 acres in critical erosion condition. The recommendation would allow for development of the important grazing and mining resource values.

While the WSA is in a natural state, its small size, minimal vegetative screening, and boundary-configuration problems reduce opportunities for solitude. Primitive recreation opportunities were found to be less than outstanding.

The WSA does not add to the diversity in the National Wilderness Preservation System. The ecosystems in the WSA are widely represented in designated wilderness areas, and this unit is located in an area of unusually rich wilderness opportunities - Montana contains 3,442,048 acres in sixteen designated wilderness areas.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The WSA contains only minor, substantially unnoticeable impacts of human activity. It contains just under 11 miles of vehicle ways, short sections of gap fence, and three developed springs. All evidence of human occupation is within about one-half mile of the WSA boundary except for two vehicle ways. The two vehicle ways appear to have been used to distribute salt to livestock, and are indistinguishable in many places so their impact is very light. The core of the WSA appears very natural; the naturalness of the WSA as a whole is one of its most outstanding characteristics.

Solitude: For an area of this size, opportunities for solitude were found to be outstanding due to the rugged topography in most places. However, the WSA's relatively small size, minimal vegetative screening (primarily in the partially timbered southern and western portions), and boundary-configuration problems are factors that can be expected to adversely affect opportunities for solitude. The irregular border configurations result from state ownership along the east and southwest edges of the study area. These dimensions limit the core of the WSA (where the best possibilities for solitude are found) to about 6,000 acres.

Primitive and Unconfined Recreation: Primitive recreation opportunities were found to be less than outstanding. The main attractions are year-round horseback riding, cross-country hiking, and seasonal hunting for antelope and mule deer. Scenery from the higher ridges is attractive, and the topographic diversity is outstanding for an area of this size.

The WSA's size and its lack of surface water would limit visits to short trips or brief overnight stays. Travel in the core of the WSA, is moderately challenging. Overall, recreation opportunities are neither very diverse nor particularly outstanding.

Special Features: No important special features were identified. Scenic values, particularly scenic erosional remnants of sedimentary rocks along the southern and western ridges, are only moderately important.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is located in the Rocky Mountain Forest Province/Sagebrush Steppe M 3110/49 ecotype. There are currently four representatives of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Rocky Mountain Forest Province/Sagebrush Steppe	2	40,784	20	212,878
MONTANA				
Rocky Mountain Forest	2	35,345	2	25,159

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Henneberry Ridge WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character)

The WSA is manageable as wilderness. The greatest potential for management conflict could occur on mining claims located along the northern edge of the WSA where past mining activity for gold and silver has occurred and where the potential exists for future mining.

Energy and Mineral Resource Values

There is good potential for small deposits of gold and silver in the northwest portion of the WSA, and for placer gold along Grasshopper Creek on the northern boundary. Oil and gas potential appears limited according to BLM geologists.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation or nondesignation of the entire area as wilderness, plus a partial-wilderness option.

Table 4
Comparative Summary of Impacts - Henneberry Ridge

Issues	Proposed Action (No Wilderness/ No Action)	All-Wilderness Alternative	Partial-Wilderness Alternative
Impacts on Wilderness Values	Naturalness would be reduced by the construction of range improvements, alteration of vegetative patterns, and mining. Habitat for mule deer and antelope would be reduced by vegetative manipulation and competition with livestock.	An example of a sagebrush steppe ecosystem would be preserved. Deer and antelope habitats would be preserved and a long snow-free season of primitive recreation use opportunities would be provided.	This alternative would impair wilderness qualities. These include the WSA's carrying capacity, potential for solitude, primitive recreation and scenic values. Also, important big game habitat would be excluded.
Impacts on Recreation	No significant impacts to use levels would occur.	Motorized recreation use of the 10.8 miles of vehicle ways mainly by hunters would end. Vehicular use of this WSA has not been quantified, but is considered light all year. Lack of solitude due to low vegetative screening limits carrying capacity.	Due to the present light use and limited opportunities for primitive or motorized recreation, impacts to either will not be significant.

Impacts on Big Game Wildlife Habitat	Deer and elk wintering habitats would be adversely affected by mineral development.	This alternative would protect wildlife habitats.	Some long-term benefit would accrue to wintering big game, but less than in the All-Wilderness alternative.
Impact on Mineral Development	There would be no impact on minerals, but exploration and development would still be regulated to prevent unnecessary and undue degradation of the land.	This alternative would eliminate the opportunity for exploration and development in the northwest portion of the WSA and along Grasshopper Creek for gold and silver.	Partial wilderness would remove much of of the WSA with highest potential from wilderness consideration, but much of the WSA along Grasshopper Creek would be in the area recommended for wilderness.
Impact on Livestock Levels	Grazing would be managed according to the Mountain Foothills EIS, and there would be no impacts to the proposed range improvements and stocking levels.	Wilderness designation would severely impact development of new facilities and would prevent improvement of a critical soil-erosion problem.	Conflicts with development of new facilities for grazing management and continuance of a soil-erosion problem would remain.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wildernes review process. Intensive inventory comments deferred for consideration until the study phase involved the area's mineral potential and the effects of designation on grazing permittees.

During formal public review of the draft EIS, a total of eighteen responses specifically mentioned the Henneberry Ridge WSA. Ten comments supported the nonwilderness proposal, six favored wilderness, and two expressed no clear opinion.

Those favoring nonwilderness felt the area has low wilderness quality and high mineral potential. Respondents favoring wilderness designation believed that the area would add significantly to the diversity of the wilderness system and that it has wilderness qualities.

No federal, state, or local agencies submitted WSA-specific comments.

FARLIN CREEK WILDERNESS STUDY AREA

THE STUDY AREA - 1,139 acres

The Farlin Creek Wilderness Study Area (MT-076-034) is in Beaverhead County, 25 miles west of Dillon, Montana. This WSA includes 1,139 acres of BLM land contiguous to the 93,859-acre East Pioneer proposed wilderness (FS RARE II Area 1-008) (see Table 1). All the WSA's boundaries are located along legal lines, with National Forest lands adjoining the unit on the east and forming part of the north and south boundaries. Private tracts and BLM-managed lands form the rest of the boundaries.

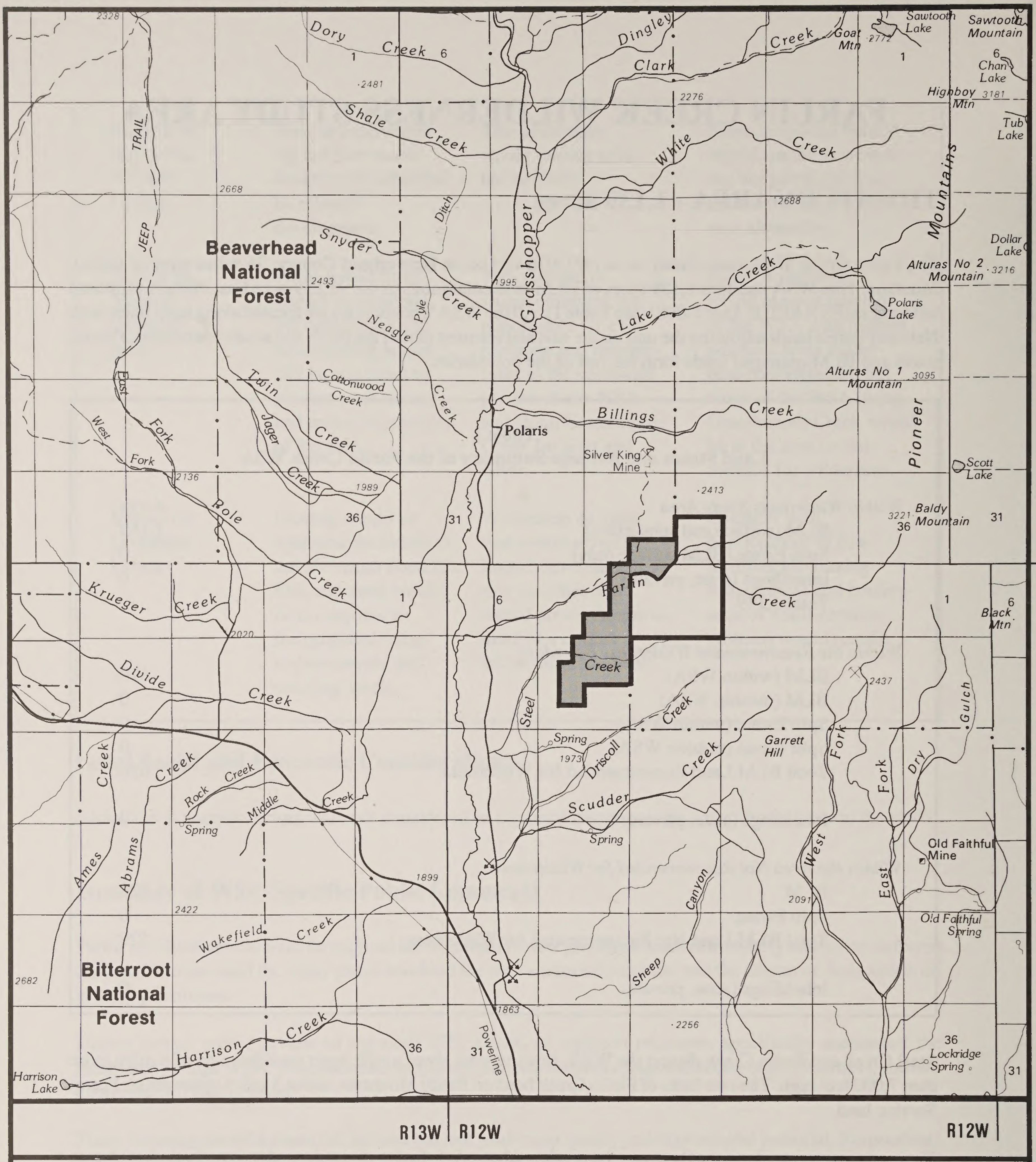
Table 1
Land Status and Acreage Summary of the Farlin Creek WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	1,139
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total 1,139	
Within the Recommended Wilderness Boundary	
BLM (within WSA)	610
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	610
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	529
Split Estate	0
Total BLM Land Not Recommended for Wilderness	529
Inholdings (state, private)	0

Steel Creek and Farlin Creek dissect the WSA, flowing west about a mile apart on either side of a ridge more than 7,000 feet high. The two forks of Farlin Creek head on Baldy Mountain, about 3 miles upstream on Forest Service land.

Timered areas are predominant between the creeks and on north-facing slopes is predominantly timber. Aspen stands and meadows border the creeks. Parts of the western edge of the WSA and the area north of Farlin Creek are open, sagebrush-grassland types.

The WSA was studied under Section 202 of the Federal Land Policy & Management Act (FLPMA), and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987. The EIS analyzed three alternatives: no wilderness, all wilderness, and a partial-wilderness alternative wherein 610 acres would be designated wilderness and 529 acres would be released for uses other than wilderness.



Beaverhead National Forest
Bitterroot National Forest
Dory Creek
Shale Creek
Dingley Creek
Clark
White Creek
Snyder Creek
Grasshopper
Pyle
Ditch
Neagle Creek
Cottonwood Creek
Twin Creek
Jager Creek
East Fork
West Fork
JEEP TRAIL
Pole Creek
Lake Creek
Billings Creek
Polaris
Silver King Mine
Farlin Creek
Krueger Creek
Divide Creek
Steel
Driscoll Creek
Spring
Garrett Hill
Scudder Creek
Canyon
Sheep
West Fork
East Fork
Dry Gulch
Old Faithful Mine
Old Faithful Spring
Lockridge Spring
Ames Creek
Abrams Creek
Rock Creek
Middle Creek
Wakefield Creek
Harrison Creek
Harrison Lake
Powerline
Goat Mtn
Sawtooth Lake
Sawtooth Mountain
Chan Lake
Highboy Mtn
Tub Lake
Pioneer Mountains
Dollar Lake
Alturas No 2 Mountain
Polaris Lake
Alturas No 1 Mountain
Scott Lake
Baldy Mountain
Black Mtn
2328
2481
2276
2772
3181
2668
2688
3216
2493
1995
3095
2136
1989
2413
3221
2020
2437
1973
1899
2091
2422
2682
1863
2256
1
6
36
31
T5S
T6S
R13W
R12W
R12W

☐	RECOMMENDED FOR WILDERNESS
▨	RECOMMENDED FOR NONWILDERNESS
NONE	LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE	SPLIT ESTATE
NONE	STATE
NONE	PRIVATE

Farlin Creek Proposal

MT-076-034
SEPTEMBER, 1990

RECOMMENDATION AND RATIONALE -
610 acres recommended for wilderness
529 acres recommended for nonwilderness

A total of 610 acres is recommended for wilderness designation as a tack-on to the Forest Service's proposed East Pioneer Wilderness, with 529 acres recommended to be released for uses other than wilderness. (See map 1.) If the recommended portion of Farlin Creek WSA ultimately is designated wilderness, a transfer of management authority from BLM to the FS is recommended so that only one agency is responsible for wilderness management. If the FS unit is not ultimately designated wilderness, Farlin Creek WSA would not be a viable independent candidate for wilderness consideration because of its small size.

The all-wilderness alternative is considered the environmentally preferred alternative, as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The major factors considered in this recommendation are the values the WSA would add to the proposed FS wilderness, and potential conflicts with minerals and motorized access. The part of this WSA recommended for wilderness would add several values to the adjacent portion of the FS unit. By including the timbered ridge extending west from Baldy Mountain (a significant feature of the FS unit), physiographic and scenic unity would be enhanced and scenic values would be protected. With the combination of BLM and U.S. Forest Service lands, the larger wilderness unit would acquire a less irregular and therefore more manageable boundary. This recommendation also provides a logical wilderness access route to the Baldy Mountain area, and some supplemental wildlife and recreation features.

Designating only part of the WSA as wilderness would reduce potential conflicts with minerals and motorized access. The portion with high current mineral interest for gold and silver and mineral potential for tungsten is proposed for nonwilderness. The most heavily traveled recreational-vehicle routes, as well as the route to the Polaris claim group north of Farlin Creek, also are within the portion of the WSA not recommended for wilderness.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory concluded that the imprints within the WSA do not significantly affect the natural character. However, a concentration of impacts exists along lower Farlin Creek, where a well-used vehicle way and nearby selective logging present a moderate impact. Other human imprints are three short vehicle ways in the northern third of the WSA and the remains of a mine and a vehicle way along Steel Creek. These imprints have a low impact. Overall, the WSA appears substantially natural except for the area along Farlin Creek.

Solitude: The intensive inventory concluded that the WSA has outstanding opportunities for solitude due to the broken terrain and forest cover. In most of the unit, forest cover and the well-dissected topography provide excellent potential for seclusion, especially when the WSA is considered as part of the larger roadless area. The two major drainages and several small tributaries offer good potential for the dispersal of visitors.

Primitive and Unconfined Recreation: As a separate entity, Farlin Creek WSA does not have outstanding primitive recreation values, but when considered with the Forest Service unit, it does provide good opportunities for primitive recreation. Activities best suited to this WSA are hiking, backpacking, horseback riding, and hunting for elk, deer, and mountain grouse. As an access point or supplemental site, the WSA contributes to other opportunities on National Forest lands, such as climbing, nature study, and mountain goat hunting.

Special Features: Farlin Creek WSA offers no special features.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The WSA is located within the Rocky Mountain Forest Province/Douglas Fir Forest M3110/11. There are currently seventeen areas of this ecotype in the National Wilderness Preservation System and twenty-two other BLM wilderness study areas under consideration for possible wilderness designation. Table 2 summarizes this information.

Table 2
Ecosystem Representation (1988)

Bailey-Kuchler Classification (Domain/Province/PNV)	**NWPS Areas**		**Other BLM Studies**	
	areas	**acres**	**areas**	**acres**
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	17	1,345,741	12	98,328
MONTANA				
Rocky Mountain Forest Province/Douglas Fir Forest	0	0	10	101,701

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		**Other BLM Studies**	
Population Centers	**areas**	**acres**	**areas**	**acres**
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: The Farlin Creek WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

Farlin Creek is not manageable as wilderness on its own, but must be considered as a tack-on to the FS area. The National Forest/WSA boundary is irregular, and the WSA fits into this boundary from the west for a width of about one-half to one mile. The body of this WSA added to the larger FS area would create a less irregular and more manageable East Pioneer FS wilderness unit. A concentration of mining claims in the southwest part of the WSA could impair effective management of the WSA as wilderness if valid discoveries on any of the claims are proved.

Energy and Mineral Resource Values

The U.S. Geological Survey and Bureau of Mines conducted a mineral survey of Farlin Creek WSA which was published in 1987. The area contains no visible evidence of mineralization and no identified mineral resources. Geophysical evidence suggests that three parts of the WSA have moderate potential for undiscovered resources of molybdenum. The entire area has a low resource potential for all other metals and for nonmetals, fuels and geothermal energy.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation, nondesignation, or partial designation of the WSA as wilderness.

Table 4
Comparative Summary of Impacts - Farlin Creek WSA

Issues	Proposed Action (Partial Wilderness)	All-Wilderness Alternative	No-Wilderness/No-Action Alternative
Impacts on Wilderness Values	Impacts to naturalness and solitude would be less than under No Wilderness. Impacts on 160 acres from mining still could occur within the Partial Wilderness boundary.	This alternative would protect the solitude and wildlife habitat in the WSA. Possible mining on existing claims found to be valid could reduce naturalness and wildlife habitat.	Wilderness values would be adversely affected by possible mining and timber harvest activities.
Impacts on Recreation	Small impacts to motorized and primitive recreation would occur.	Due to the current light use and primitive or recreation opportunities, impacts to either are insignificant.	The impact to motorized or primitive recreation opportunities is small. Activities such as timber harvest could adversely affect the quality of primitive recreation on adiacent FS lands.

Impacts on Big Game Wildlife Habitat	Protection of deer and elk cover would be diminished by mining activity on the nonwilderness portion of the WSA.	Important spring/ habitat for deer and elk would be protected from surface-distrubing activities (e.g. timber harvest). The WSAs ecological diversity, which is important for would be maintained.	Cover and security for deer and elk would be adversely affected by timber harvest and mining.
Impacts on Mineral Develop-ment	This alternative may have a significant impact on the exploration and development of an area within the the WSA having high potential for silver, gold and tungsten.	Based on current information, potential for oil, gas and phosphate is limited. Good potential for the development of gold, silver and tungsten would be foregone.	There would be no impact on minerals. Existing regulations to prevent unnecessary and undue degradation of the land would continue.
Impacts on Livestock Levels	No impacts to range improvements or stocking levels.	No significant impacts to range improvements or stocking levels.	No significant impacts to range improvements or stocking levels.
Impacts on Forest Levels and Timber Economics	The overall result would be the same as as for the All Wilderness Alternative.	As long as the area remains wilderness the removal of forest products is not possible. Potential harvest of 410 mbf per decade would be foregone.	The WSA would be available for the potential harvest of 410 mbf of timber per decade.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Intensive inventory comments deferred for consideration until the study phase involved mineral and timber potential and transfer of BLM management authority to the Forest Service. Several comments mentioned that the WSA was too small for wilderness consideration.

During formal public review of the Draft EIS, a total of twenty-six comments was received that specifically mentioned the Farlin Creek WSA. Ten favored the proposed partial-wilderness recommendation. These respondents believed Farlin Creek is an appropriate addition to the Forest Service's proposed East Pioneer wilderness.

Eleven respondents believed the WSA should be recommended for nonwilderness. Reasons given for this position were that areas smaller than 5,000 acres should not be studied, and that the WSA should be available for mineral development. One respondent proposed a new boundary for the National Forest area that would eliminate Farlin Creek WSA as a continguous unit.

Two comments favored wilderness designation for the entire WSA, and wanted to include elk winter range not within the proposed wilderness boundary. Three comments expressed no clear opinion.

No federal, state, or local agencies submitted any WSA-specific comments.

AXOLOTL LAKES WILDERNESS STUDY AREA

THE STUDY AREA - 7,804 acres

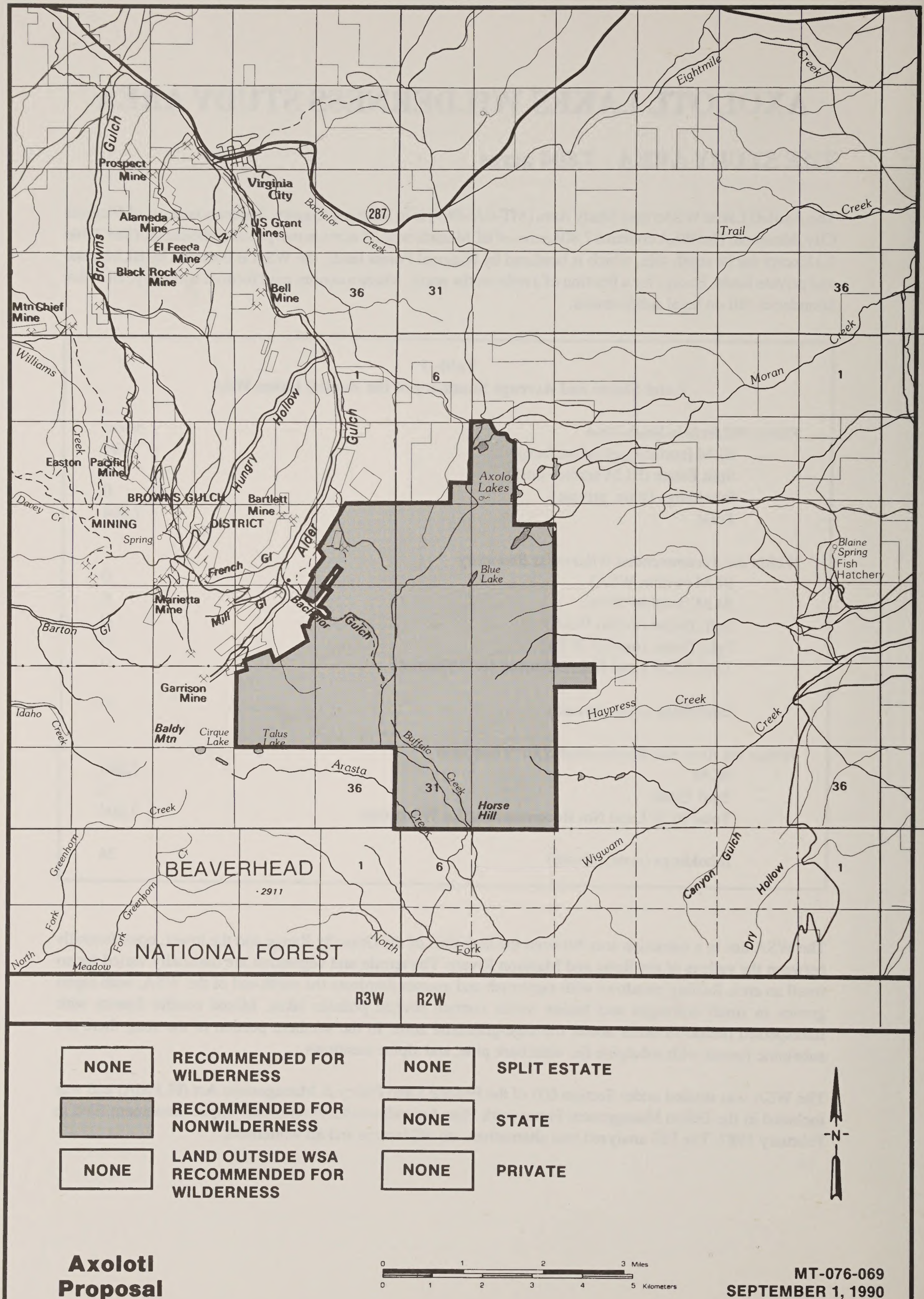
The Axolotl Lakes Wilderness Study Area (MT-076-069) is in Madison County, 3 miles southeast of Virginia City, Montana. The WSA contains 7,804 acres of BLM lands with 24 acres in two private inholdings. (See Table 1.) Except for its south side, which is bordered by National Forest lands, the WSA is bounded by BLM, state and private lands. Except for a fraction of a mile on the north, where a county road forms a boundary, all WSA boundaries fall on legal subdivisions.

Table 1
Land Status and Acreage Summary of the Axolotl Lakes WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	7,804
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	7,804
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	7,804
Split Estate	0
Total BLM Land Not Recommended for Wilderness	7,804
Inholdings (state, private)	24

The WSA lies in a transition area between the high hills of the Gravelly Range and the lower, open foothills between the valleys of the Ruby and Madison Rivers. The terrain and vegetation are unusually varied for so small an area. Rolling meadows with sagebrush and grasses dominate the north end of the WSA, with aspen groves in small drainages and basins which contain several pothole lakes. Mixed conifer forests with interspersed meadows occur above the sage-grassland zone. In the southern portion of the area, there are subalpine forests with subalpine fir, whitebark pine, and alpine meadows.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) and was included in the Dillon Management Framework Plan Amendment/Environmental Impact Statement filed in February 1987. The EIS analyzed two alternatives: no wilderness and all wilderness.


Browns Gulch
Prospect Mine
Virginia City
287
Bachelor Creek
Alameda Mine
US Grant Mines
El Feeda Mine
Black Rock Mine
Bell Mine
Mtn Chief Mine
Eightmile Creek
Trail Creek
36
31
36
T6S
T7S
Williams
Moran Creek
1
6
1
Hungry Hollow
Alder Gulch
Creek
Easton
Pacific Mine
Axolotl Lakes
BROWNS GULCH MINING DISTRICT
Bartlett Mine
Davey Cr
Spring
French Gl
Blue Lake
Blaine Spring Fish Hatchery
Marietta Mine
Mill Gl
Bachelor Gulch
Barton Gl
Garrison Mine
Haypress Creek
Creek
Idaho Creek
Baldy Mtn
Cirque Lake
Talus Lake
Buffalo Creek
Arasta
36
31
Horse Hill
36
Creek
T7S
T8S
Greenhorn Cr
BEAVERHEAD
1
6
Wigwam
Canyon Gulch
Hollow
1
·2911
North Fork
Greenhorn
Fork
Dry
North
Fork
Meadow
NATIONAL FOREST
R3W
R2W
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
N
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Axolotl Proposal

MT-076-069
SEPTEMBER 1, 1990

RECOMMENDATION AND RATIONALE -

0 acres recommended for wilderness

7,804 acres recommended for nonwilderness

The recommendation is not to designate the WSA as wilderness, and to release the area for uses other than wilderness. The major factors influencing the recommendation are wilderness quality, resource and use conflicts, and an existing management that protects the important resource values of the WSA. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change in the natural environment over the long term. The recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The WSA has significant scenic value and wildlife features, and a diversity of primitive recreation opportunities. Human imprints reduce the WSA's wilderness qualities significantly, however.

A constructed vehicle route, evidence of logging, and constructed spur roads to prospect pits and mines are concentrated in the northwestern corner of the WSA. These imprints, plus the concentration of vehicle ways in the south-eastern portion and a north-south stock driveway through the middle of the unit, adversely impact the WSA's natural appearance.

The opportunities for solitude are good for a WSA of this size. But irregular borders that severely limit natural travel routes, the lack of coherent topographic or physiographic boundaries, and the WSA's configuration on the north and east sides combine to limit long-term, high-quality opportunities for solitude.

Under wilderness designation, resource values foregone would be the relatively important motorized recreation use, full development of an area with high potential for gold, and long-term opportunities for a harvest of about two million board feet of timber per decade.

Current management consists of restrictions on timber and minerals activities in a portion of the WSA (2,200 acres), motorized-travel restrictions to protect wildlife and watershed values, and a grazing exclusion around Blue Lake to protect the axolotl, a unique, nonmetamorphosing form of the tiger salamander. This program protects the special values in the lakes area, but allows timber harvest and mineral activity in the rest of the WSA.

The current land-use plan calls for most of the WSA to be considered as an ACEC for its wildlife, watershed, and recreation values. Current management is considered adequate to protect the WSA's special features without special status. It may be considered for designation as an ACEC later if any of the management components change or if the target values are considered threatened.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The intensive inventory concluded that, though there are significant signs of human activity in the WSA, its topographic and vegetative diversity reinforces a sense of naturalness. The inventory also noted that some of the vehicle ways probably could be returned to a natural condition with motor-vehicle travel restrictions.

Among other artificial elements are 20 miles of vehicle ways and about 16.5 miles of fence. Cabin ruins, the remains of a gold mill, evidence of logging, developed springs, and a repeater tower also are present. Only about five miles of the vehicle ways in the vicinity of Axolotl and Blue lakes could be expected to rehabilitate naturally. A constructed vehicle route to one of the inholdings and a vehicle way through the center of the WSA, over which cattle are trailed, are significant individual impacts. A visitor could not travel far in the WSA without encountering several impacts on naturalness.

Solitude: The intensive inventory concluded that the diversity of landforms and vegetation provides outstanding opportunities for solitude.

This WSA's local relief enhances opportunities for solitude, especially in the western part. Terrain in about 25 percent of the area is rolling and somewhat dissected; the rest is well dissected. About half the WSA is forested; the other half exhibits a variety of open country - rolling foothills and basins, steep south-facing slopes, and high plateaus and peaks ranging in elevation from 8,300 to 9,300 feet.

Opportunities for solitude are good for a WSA of this size, although the lack of coherent topographic or physiographic boundaries, especially on the south and east, limits the size of the area in which solitude may be found. The irregular margins severely limit the number of natural routes of travel (such as along drainages and ridges) that are entirely within the WSA. The configuration also limits the opportunities somewhat in the northern and eastern portions and along the western edge; however, the varied topography, frequent stands of timber, and interspersed meadows and open high country provide secluded spots for visitors in much of the WSA.

Primitive and Unconfined Recreation: The intensive inventory concluded that a wide range of high-quality recreation opportunities contributes to an outstanding recreation potential.

Opportunities for primitive recreation are diverse and excellent. The terrain is ideal for horseback riding, cross-country hiking and backpacking, and the scenery and varied habitats provide excellent opportunities for photography and nature study. Most of the WSA offers excellent cross-country skiing and winter camping. Some lakes are stocked with cutthroat and rainbow trout so they provide good fishing. Deer, antelope, elk, and raptor habitats offer good opportunities for wildlife observation, and hunting for elk, deer, moose, antelope, and grouse is available.

Special Features: The wide variety of flora and fauna resulted in the WSA's being listed in the National Directory of Research Natural Areas. In 1972, a 1,520-acre area around the lakes was recommended as an Outstanding Natural Area by the BLM in the course of planning for the area, but no formal designation was ever made.

The axolotl is indigenous to the WSA. This unique, nonmetamorphosing form of the tiger salamander is listed as a species of interest or concern by the state of Montana, and is of scientific and educational interest.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: This WSA is located in the Rocky Mountain Forest Province/Western Spruce - Fir Forest M3110/14. There are currently forty-one areas of this ecotype represented in the National Wilderness Preservation System and eight other BLM wilderness study areas being considered for possible wilderness designation. Table 2 summarizes this information.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers, Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 2
Ecosystem Representation (1988)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	 acres	Other BLM Studies areas	 acres
NATIONWIDE				
Rocky Mountain Forest Province/Western Spruce - Fir Forest M3110/14	38	3,972,661	8	52,187
MONTANA				
Rocky Mountain Forest Province/Western Spruce - Fir Forest M3110/14	3	784,320	1	11,984

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	 acres	Other BLM Studies areas	 acres
Billings	5	2,007,274	44	447,000
Great Falls	134,387,934	44	447,000	

Balancing the geographic distribution of wilderness areas: The Axolotl Lakes WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The WSA can be reasonably managed as wilderness to preserve values now present in the WSA. However, the physical impact and use of a constructed access route to two patented mining claim inholdings in the northwestern portion would affect wilderness management. Narrow northern and eastern fingers of the WSA and the irregular western boundary, which is formed by the boundaries of patented mining claims, are moderately important management concerns.

Energy and Mineral Resource Values

A high potential for gold exists in the western portion of the WSA, which is in the Virginia City Mining District. Roughly 15 percent of the WSA is in this category. Mineral resource potential for phosphate and associated uranium is high in the Phosphoria Formation in the southern part of the WSA. Mineral resource potential is low for uranium (other than in the Phosphoria Formation), geothermal energy, oil and gas.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and alternatives considered: designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Impact Summary - Axolotl Lakes WSA

Issues	**Proposed Action (No Wilderness/No Action)**	**All-Wilderness Alternative**
Impacts on Wilderness Values	Current management direction probably would preserve wilderness qualities in the northeast one-third of the WSA, but primitive recreation, scenic values, naturalness, and opportunities for solitude probably would not be preserved in the remainder of the WSA.	Designation of the WSA as wilderness would protect habitats for elk, deer, moose, antelope, and the axolotl. Designation also would protect primitive recreation opportunities (such as hiking, hunting, and backpacking), and cultural resources (such as prehistoric occupation sites and mass kill sites).
Impacts on Recreation	Existing motorized and primitive recreation opportunities would remain available, but future primitive recreation opportunities could be diminished by mining and timber harvest.	This alternative would benefit primitive recreation and would adversely affect motorized recreation opportunities, which are perceived locally as important.
Impacts on Big Game Wildlife Habitat	Under the current land-use plan a total of 5,440 acres of the WSA would not be available for development, to protect cover for elk.	This alternative would protect cover for deer and elk.
Impacts on Mineral Development	No impact on mineral exploration and development. To prevent unnecessary and undue degradation of the land, regulation of these activities would continue.	This alternative would prevent the development of an area with high potential for gold.
Impacts on Livestock Levels	No impacts, as range improvements and stocking levels would be based on the Mountain Foothills EIS and would not differ significantly from those under the All-Wilderness Alternative.	There would be no significant impacts to proposed range improvements or stocking levels.

Impacts on Forest Harvest Levels and Timber Economics	1,260 mbf per decade would be available for harvest.	Over the short term, about 2,200 acres are closed to timber harvesting to protect watershed, wildlife, and recreation values. Thus the short-term impact of wilderness is not great. But in the long term, 2,842 mbf of harvest per decade would be foregone.

Local Social and Economic Considerations

Social and economic factors were not considered as a general category to be a significant issue in the study.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. Intensive inventory comments deferred for consideration until the study phase involved the benefits of wilderness to important wildlife habitats, and the effects of wilderness designation on livestock grazing operations and on the development of timber and mineral resources.

During formal public review of the draft EIS, a total of seventeen comments was received that specifically mentioned the Axolotl Lakes WSA. Six supported the no-wilderness recommendation; eight favored wilderness designation; three preferred designation as an area of critical environmental concern (ACEC).

Those favoring nonwilderness felt generally that the WSA lacked sufficient quality to overcome resource conflicts. One respondent mentioned mineral potential, and one favored allowing a full range of uses under nonwilderness management, rather than designating the unit an ACEC.

Respondents who favored wilderness designation felt the WSA has special biological and natural features that should be preserved. Two mentioned that timber harvest would not be compatible with these features.

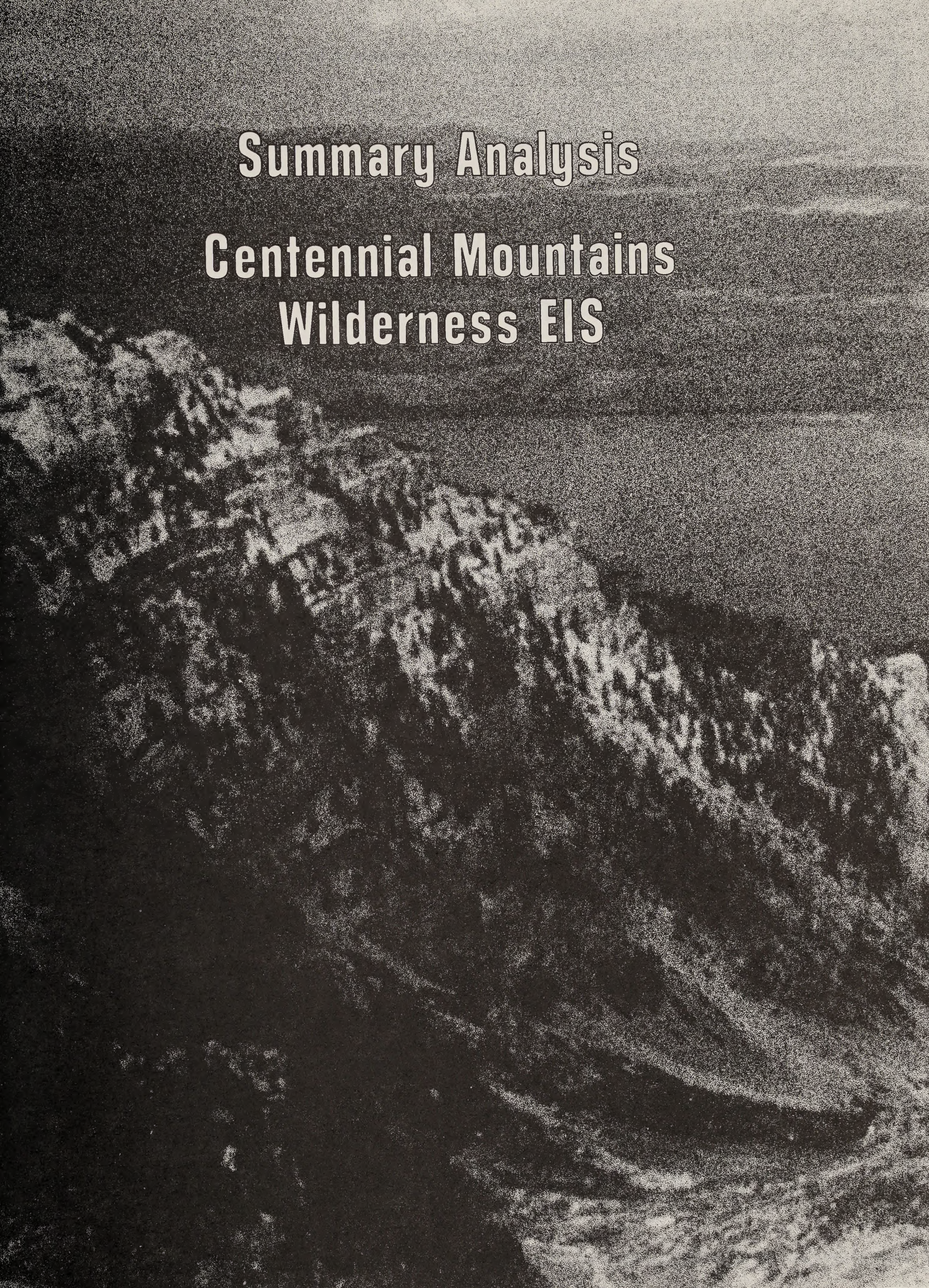
The three comments favoring ACEC designation believed the WSA should be managed to preserve wildlife, watershed, and nonmotorized recreation values.

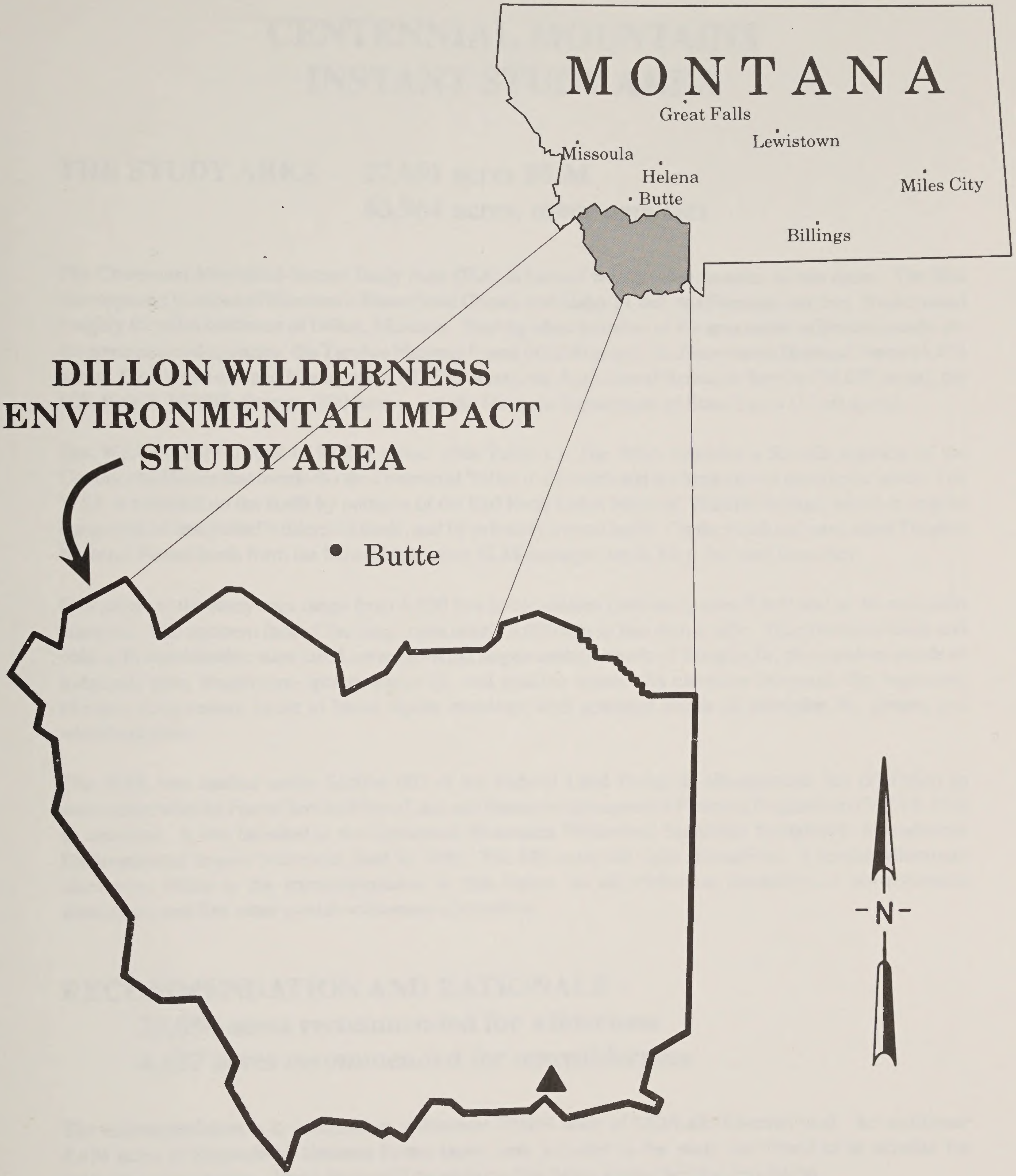
One respondent proposed a partial-wilderness alternative that would include most of the WSA as wilderness.

No federal, state, or local agencies submitted any WSA-specific comments.

Summary Analysis

Centennial Mountains Wilderness EIS




MONTANA
Great Falls
Lewistown
Missoula
Helena
Butte
Miles City
Billings
DILLON WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA
Butte
N

CENTENNIAL MOUNTAINS WILDERNESS STUDY AREA

CENTENNIAL MOUNTAINS INSTANT STUDY AREA

THE STUDY AREA - 27,691 acres BLM
63,964 acres, other agencies

The Centennial Mountains Instant Study Area (ISA) is located within three counties in two states. The ISA encompasses portions of Montana's Beaverhead County and Idaho's Clark and Fremont counties. It is centered roughly 60 miles southeast of Dillon, Montana. Sharing administration of the area under wilderness study are six governmental agencies: the Targhee National Forest (42,040 acres), the Beaverhead National Forest (4,474 acres), the Bureau of Land Management (27,691 acres), the Agricultural Research Service (16,650 acres), the U.S. Fish & Wildlife Service (800 acres), and the Montana Department of State Lands (1,160 acres).

The WSA contains a total of 92,815 acres. (See Table 1.) The WSA straddles a 30-mile segment of the Continental Divide that overlooks the Centennial Valley to the north and the Snake River plain to the south. The WSA is bounded on the north by portions of the Red Rock Lakes National Wildlife Refuge, which is largely composed of designated wilderness lands, and by privately owned lands. On the south and east, other Targhee National Forest lands form the boundaries; other BLM-managed lands form the west boundary.

Elevations in the study area range from 6,800 feet in the eastern portions to over 9,800 feet at the mountain summits. The northern face of the range rises nearly 3,000 feet in less than a mile. The climate is harsh and cold with considerable snowfall. Lower elevation slopes contain stands of Douglas fir, plus random stands of lodgepole pine, Engelmann spruce, alpine fir, and quaking aspen. As elevation increases, the vegetation changes from mature forest to broad alpine meadows with scattered stands of subalpine fir, spruce, and whitebark pine.

The WSA was studied under Section 603 of the Federal Land Policy & Management Act (FLPMA) in accordance with the Forest Service Forest Land and Resource Management Planning Regulations (36 CFR 219) as amended. It was included in the Centennial Mountains Wilderness Suitability Study/MFP Amendment/ Environmental Impact Statement filed in 1990. The EIS analyzed eight alternatives: a partial-wilderness alternative which is the recommendation in this report, an all-wilderness alternative, a no-wilderness alternative, and five other partial-wilderness alternatives.

RECOMMENDATION AND RATIONALE -
23,054 acres recommended for wilderness
4,637 acres recommended for nonwilderness

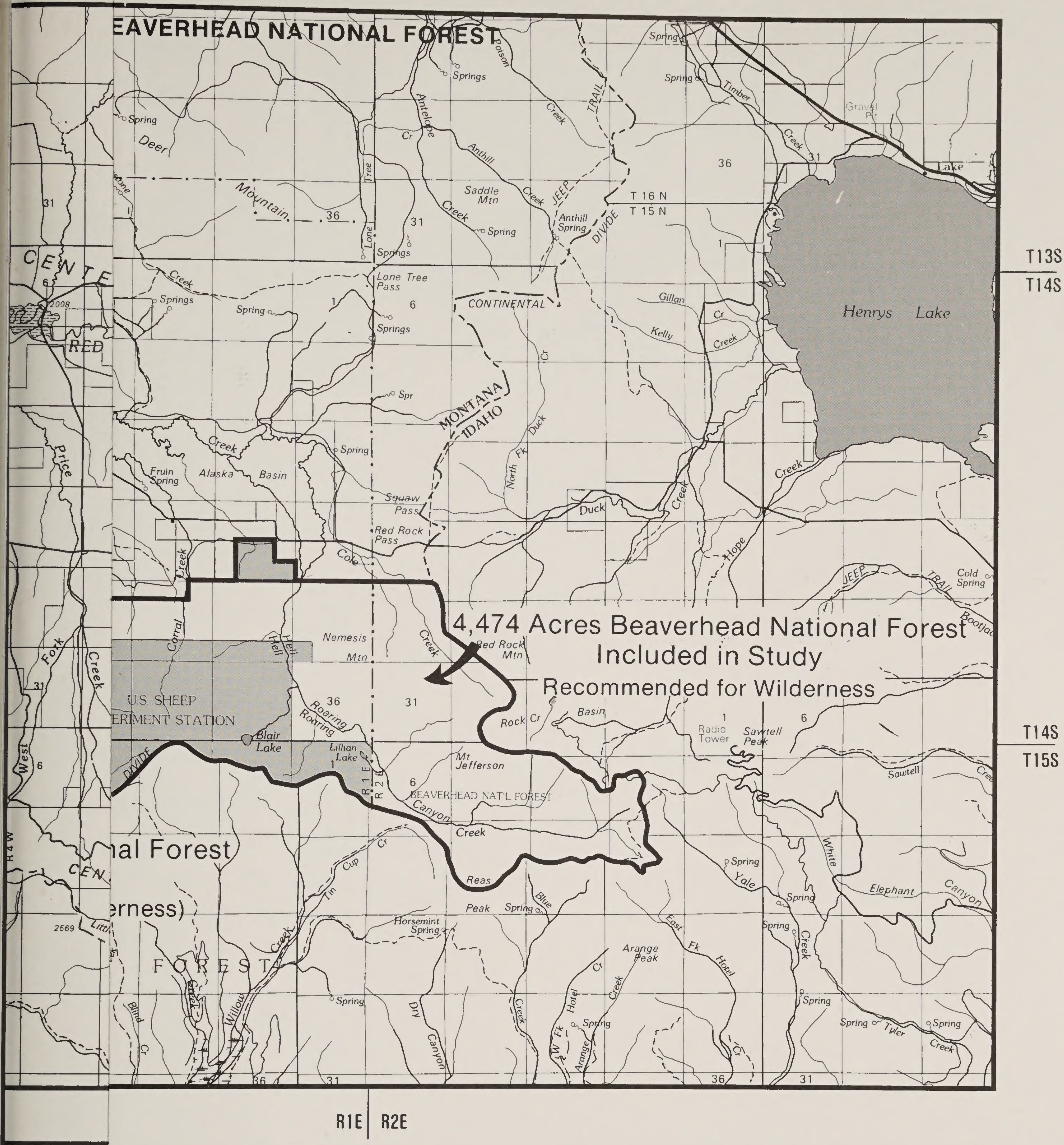
The recommendation is to designate as wilderness 23,054 acres of BLM-administered land. An additional 4,474 acres of Beaverhead National Forest lands were included in the study and found to be suitable for wilderness designation. These lands will be addressed in future Forest Service legislation.

The recommendation would release the remaining 4,637 acres of BLM-administered lands. The 42,040 acres of Targhee National Forest lands included in the study and not recommended for designation will be addressed in future Forest Service legislation. An additional 16,650 acres of Agricultural Research Service lands located between the BLM, Targhee and Beaverhead National Forest lands were included in a wilderness study alternative but were not found to be suitable for designation. These lands were outside the wilderness study area boundary. There are also 800 acres of U.S. Fish and Wildlife Service administered lands included in the study because of their proximity to designated wilderness study area lands. These lands were also found to be not suitable for designation.

Table 1
Land Status and Acreage Summary of the Centennial Mountains WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	27,691
Split Estate (BLM surface only)	0
Beaverhead National Forest (surface and subsurface)	4,474
Spilt Estate (FS surface only)	0
Targhee National Forest (surface and subsurface)	42,040
Split Estate (FS surface only)	0
Split Estate (ARS surface only)	0
Inholdings (state)	1,160
Total	75,365
Within the Recommended Wilderness Boundary	
BLM (within WSA)	23,054
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Beaverhead National Forest (within WSA)	4,474
Beaverhead National Forest (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Inholdings (state)	1,160
Total	28,688
Within the Area Not Recommended for Wilderness	
BLM	4,637
Split Estate	0
Total BLM Land Not Recommended for Wilderness	4,637
Beaverhead National Forest	0
Split Estate	0
Targhee National Forest	42,040
Split Estate	0
Total NF Land Not Recommended for Wilderness	42,040
Agriculture Research Service (outside WSA)	16,650
Split Estate	0
Total ARS Land Not Recommended for Wilderness	16,650
U.S. Fish & Wildlife Service (outside WSA)	800
Split Estate	0
Total FWS Land Not Recommended for Wilderness	800
Total Area Not Recommended for Wilderness	64,087

The all-wilderness alternative is considered the environmentally preferred alternative, as it would result in the least change in the natural environment over the long term. The partial-wilderness recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.


BEAVERHEAD NATIONAL FOREST
4,474 Acres Beaverhead National Forest Included in Study
Recommended for Wilderness
Henrys Lake
U.S. SHEEP
ERIMENT STATION
BEAVERHEAD NAT'L FOREST
nal Forest
erness)
FOREST
CONTINENTAL
DIVIDE
MONTANA
IDAHO
JEEP TRAIL
T 16 N
T 15 N
T13S
T14S
T14S
T15S
R1E
R2E
R4W
Red Rock Pass
Squaw Pass
Lone Tree Pass
Red Rock Mtn
Nemesis Mtn
Mt Jefferson
Saddle Mtn
Sawtell Peak
Radio Tower
Blair Lake
Lillian Lake
Alaska Basin
Hell Roaring Creek
Canyon Creek
Reas Peak
Anthill Spring
Fruin Spring
Horsemint Spring
Cold Spring
Arange Peak
Duck Creek
Gillan Creek
Kelly Creek
Hope Creek
Timber Creek
Antelope Cr
Poison Creek
Elephant Canyon
Yale Creek
East Fk Hotel Creek
Tyler Creek
Price Creek
West Fork Creek
Corral Creek
Willow Creek
Tin Cup Cr
Dry Canyon
Gravel Pit
2008
2569

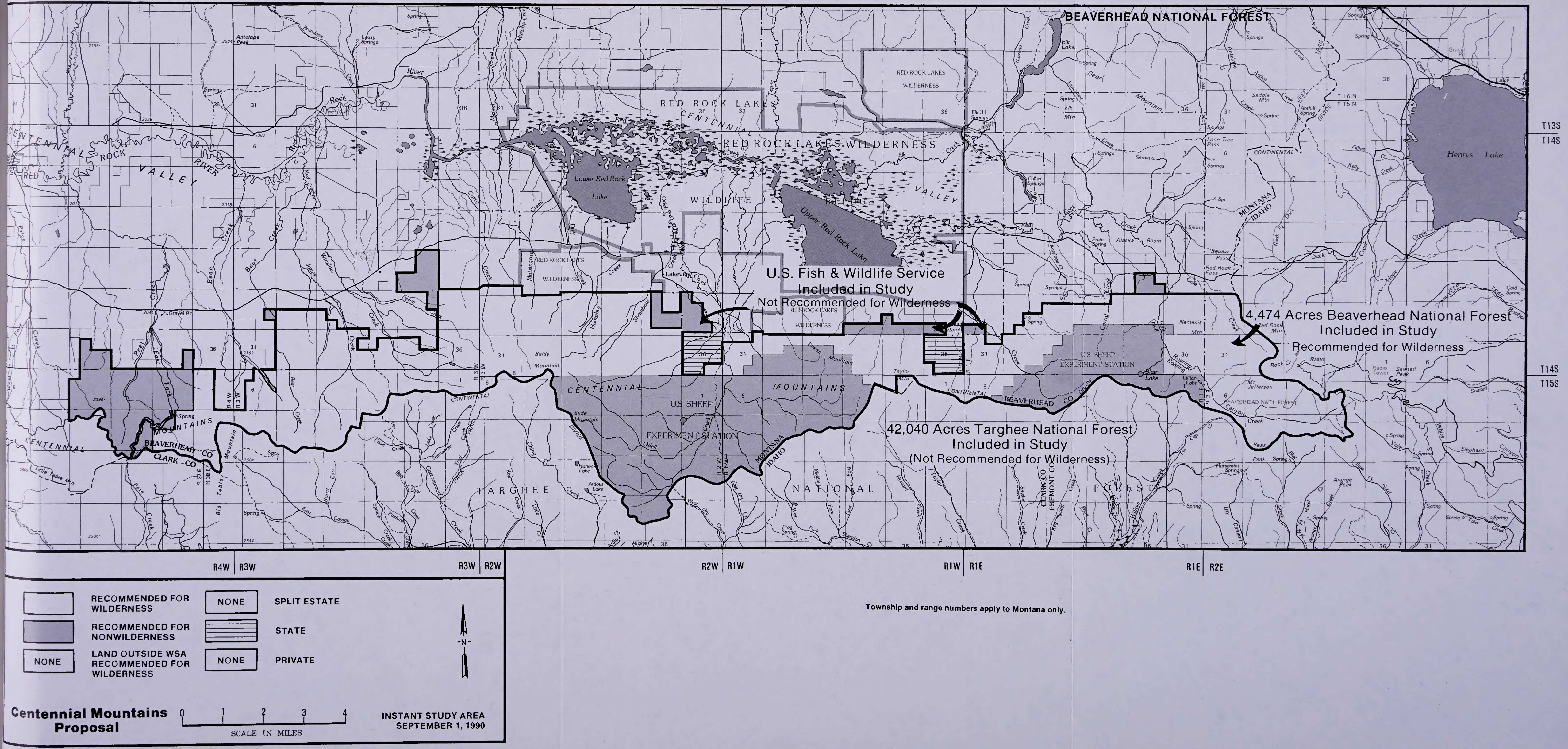
NC

Cente

Table 1
Land Status and Acreage Summary of the Centennial Mountains WSA

Within Wilderness Study Area	*Acres*
BLM (surface and subsurface)	27,691
Split Estate (BLM surface only)	0
Beaverhead National Forest (surface and subsurface)	4,474
Spilt Estate (FS surface only)	0
Targhee National Forest (surface and subsurface)	42,040
Split Estate (FS surface only)	0
Split Estate (ARS surface only)	0
Inholdings (state)	1,160
Total	75,365
Within the Recommended Wilderness Boundary	
BLM (within WSA)	23,054
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Beaverhead National Forest (within WSA)	4,474
Beaverhead National Forest (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Inholdings (state)	1,160
Total	28,688
Within the Area Not Recommended for Wilderness	
BLM	4,637
Split Estate	0
Total BLM Land Not Recommended for Wilderness	4,637
Beaverhead National Forest	0
Split Estate	0
Targhee National Forest	42,040
Split Estate	0
Total NF Land Not Recommended for Wilderness	42,040
Agriculture Research Service (outside WSA)	16,650
Split Estate	0
Total ARS Land Not Recommended for Wilderness	16,650
U.S. Fish & Wildlife Service (outside WSA)	800
Split Estate	0
Total FWS Land Not Recommended for Wilderness	800
Total Area Not Recommended for Wilderness	64,087

The all-wilderness alternative is considered the environmentally preferred alternative, as it would result in the least change in the natural environment over the long term. The partial-wilderness recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.



BEAVERHEAD NATIONAL FOREST
RED ROCK LAKES CENTENNIAL
RED ROCK LAKES WILDERNESS
WILDLIFE REFUGE
VALLEY
CENTENNIAL ROCK VALLEY
Lower Red Rock Lake
Upper Red Rock Lake
Henrys Lake
U.S. Fish & Wildlife Service
Included in Study
Not Recommended for Wilderness
4,474 Acres Beaverhead National Forest
Included in Study
Recommended for Wilderness
42,040 Acres Targhee National Forest
Included in Study
(Not Recommended for Wilderness)
U.S. SHEEP EXPERIMENT STATION
CENTENNIAL MOUNTAINS
CONTINENTAL DIVIDE
BEAVERHEAD CO
CLARK CO
FREMONT CO
MONTANA
IDAHO
TARGHEE NATIONAL FOREST
T13S
T14S
T15S
R4W | R3W
R3W | R2W
R2W | R1W
R1W | R1E
R1E | R2E
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
STATE
NONE
PRIVATE
N
0
1
2
3
4
SCALE IN MILES

Township and range numbers apply to Montana only.

Centennial Mountains Proposal

INSTANT STUDY AREA
SEPTEMBER 1, 1990

The major factors considered in the recommendation to designate a portion of the area wilderness are the area's important wilderness values, the existence of human impacts, and other resources or uses that would conflict with wilderness designation. The 23,054 acres recommended for wilderness designation include most of the north-facing mountain range that overlooks the Centennial Valley and is located north of the Continental Divide in Montana. The area's primary wilderness qualities are its relatively pristine natural conditions, outstanding scenic values, excellent opportunities for solitude and unconfined primitive recreation, and habitats for threatened and endangered wildlife.

The 4,637 acres not recommended for wilderness designation include the most concentrated human impacts or other resource values or uses that would conflict with wilderness designation. This recommendation would allow for 3,000 acres of high quality commercial timber stands to be harvested in the Price-Peet Creek area.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The study area appears natural in character, with the major impacts caused by roads, mining, and watershed rehabilitation activities.

North of the Continental Divide, the only signs of development activity are two small cherry-stemmed roads, six short two-wheeled tracks, and a well-camouflaged U.S. Soil Conservation Service snow course. South of the Divide, mining, grazing, and timber harvest have created nine vehicle ways, four cherry-stemmed access roads, five spring/water developments, 670 acres of sagebrush spraying/reseeding projects, and the remains of shale-and coal-mining operations.

B. Solitude: The Centennial Mountains Study Area offers outstanding opportunities for solitude. It encompasses the 34-mile uplift of the Centennial Mountains and varies from 2 to 8 miles in width. Forty-eight drainages dissect the study area, and elevations vary from under 7,000 to nearly 10,000 feet. This wide variety of topography and vegetation assures a visitor of the opportunity to avoid encountering others in most of the study area.

From some vantage points, especially south of the Continental Divide, solitude may be adversely affected by off-site human activities. The center of the study area has been significantly altered by phosphate mining, including exploration pits, tailing piles, and haul roads on the south side of Taylor Mountain. These remains can be seen from a number of locations and are especially visible from the south. About 364 acres of contour furrowing and trenching for watershed restoration exist on the eastern edge of the study area. There are areas of recent timber harvest on the northern, western, and southern edges. Furthermore, visitors can observe human activity in the 16,650 acres of the sheep station or on the roads inside the Red Rock Lakes National Wildlife Refuge, but the effect would be diminished by distance from these areas.

From certain vantages a visitor may be affected by ongoing or past human activities. Generally, however, the study area's vegetative and topographical screening, size, and expansive vistas impart a sense of isolation from the works and presence of human activity.

Primitive and Unconfined Recreation: The Centennial Study Area provides a diversity of opportunities for primitive and unconfined recreation. Physical characteristics of the area contribute to some outstanding opportunities for hiking, camping, and horseback riding. The open nature of the numerous drainages and a variety of old trails and vehicle ways permit enjoyable nonmechanized travel. Views from the higher elevations extend to the Teton Range 75 miles to the south and to the Lima Peaks, Gravelly, Snowcrest, and Madison ranges to the north.

Hunting for elk, deer, moose, and black bear - is a popular fall activity, and extensive wildflower displays attract visitors in spring. The Centennials offer good opportunities for wildlife observation and photography of such species as elk, bear, mule deer, moose, eagles, falcons, and hawks. The steep faces and ridges of the north aspect of the Centennial Mountains provide challenging climbs. Cross-country skiing is a possible winter activity, but is restricted on the north side of the Continental Divide due to difficult access, heavy snowpack, and avalanches. Fishing in the small lakes and streams is popular. Westslope and Yellowstone cutthroat trout as well as rainbow, brown, and brook trout can be found in the area's waterways.

Special Features: The Centennial Study Area contains a large variety of scientific, educational, historic, geologic, scenic and ecologic resources.

A portion of the Divide from Red Rock Pass to Monida, Montana, has been jointly studied by the Forest Service and the Bureau of Land Management for inclusion in the Continental Divide National Scenic Trail System.

An archaeological survey of contiguous lands on both sides of the Continental Divide has identified many archaeological sites dating from the late archaic period to the historic Shoshone period. Historic use of the area (1890-1915) was largely ranching, with timber and mining as ancillary activities.

Of geologic interest in the Centennial Mountains is a prominent fault scarp that is exposed along the north face of the range. In some places this scarp rises over 3,000 feet in one mile.

The study area contains a large diversity of vegetative habitat types. Three hundred sixty-two taxa of vascular plants were identified during an inventory in 1979.

Two threatened and endangered species of wildlife use the area. Grizzly bears have occasionally been sighted. Peregrine falcons inhabit the study area and are expected to increase in numbers. Other raptor species including the bald eagle are commonly seen.

The study area is part of the watershed for the Red Rock Lakes Wilderness and National Wildlife Refuge, which contains one of the last remaining stream populations of native grayling in Montana. The refuge also has both a breeding and wintering population of trumpeter swans.

The outstanding vistas offered from the high country constitute a significant visual resource. To the south, the Snake River Plateau extends uninterrupted for 150 miles. Seventy-five miles to the southeast, the Tetons (and most dramatically, the Grand Teton) dominate the horizon. Seventy-five miles to the west is the Lemhi Range. To the north, the horizon is full of peaks, including mountains in the Gravelly, Snowcrest, and Madison ranges of Montana.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The ISA is primarily located in the Western Spruce Fir Forest ecosystem M 3110/14 (11,984 acres) and the Douglas Fir Forest M 3110/11 (15,707 acres).

There are 41 designated wilderness areas in the Western Spruce Fir Forest ecosystem and 81 other WSAs currently being considered for wilderness designation.

There are also 17 designated wilderness areas in the Douglas Fir Forest ecosystem and 22 other WSAs being considered for wilderness designation.

Though adjacent to the Yellowstone National Park area, the Centennial Mountains Study Area does not add to the diversity of that ecosystem. The ecosystems that make up the Centennials are represented elsewhere in the Yellowstone area. Therefore, ecosystem representation is not a major factor affecting the suitability of this WSA.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Rocky Mountain Forest Province/Douglas Fir Forest	14	1,202,867	10	82,621
Rocky Mountain Forest Province/Western Spruce/ Fir Forest	38	3,972,661	7	48,367
MONTANA				
Rocky Mountain Forest Province/Douglas Fir Forest	3	142,874	11	102,985
Rocky Mountain Forest Province/Western Spruce/ Fir Forest	3	784,320	1	7,804

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of three SMAs - Boise, Idaho, and Billings and Great Falls, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these population centers.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Boise				
Billings	5	2,007,274	44	447,000
Great Falls	13	4,387,934	44	447,000

Balancing the geographic distribution of wilderness areas: Designation of the Centennial Mountains WSA would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System (NWPS). The WSA is located in an area of unusually rich wilderness opportunities. Montana contains 3,442,165 acres in sixteen designated wilderness areas, and 1,246,140 acres in seventeen presidentially endorsed areas.

Manageability

Manageability of the eastern portion of the proposed area would be possible but difficult due to the steep terrain. However, the narrow configuration does not lend itself for controlling offsite influences which have the potential for trespassing onto at least portions of the area. The drainages contained within the agricultural research service lands essentially control and also provide access to these lands. The ARS lands are accessed through the Targhee Forest on two cherry-stemmed roads which are open to the public as far as the Continental Divide. Once on the divide, however, there is no effective control of ORVs. The Continental Divide, or just before it, is the most logical place to control uses that would be detrimental to the preservation of wilderness values on all lands north of the Continental Divide. Manageability of the western portion of the area would be considerably easier as the Continental Divide comprises the majority of the southern boundary, and topography and vegetation would aid in controlling inappropriate uses on the remainder of the area. Roads from the south through the Targhee Forest do not exist, thus the problem that exists on the eastern end does not exist here.

The manageability of the area would be enhanced by including 4,474 acres of the Mount Jefferson roadless area managed by the Beaverhead National Forest and the acquisition of 1,160 acres of State of Montana Land.

Energy and Mineral Resource Values

The Geological Survey and the Bureau of Mines prepared a mineral assessment for the Centennial Mountains WSA in 1980. Phosphate is the major commodity of economic interest, and very large amounts of it are in the study area. Resources are estimated to be 437,695,000 tons (397,072,000 t) of acid-grade (more than 31 percent P_2O_5) rock, and 636,642,000 tons (577,551,000 t) of furnace-grade (more than 24 percent P_2O_5) rock, and 829,907,000 tons (752,882,000 t) of beneficiation-grade (more than 18 percent P_2O_5) rock.

Possible byproducts derived from processing the phosphate include vanadium, chromium uranium, silver, fluorine, and the rare earths lanthanum and yttrium.

The potential for oil and gas is low to moderate. Two structures are of interest: the Peet Creek anticline, a structure buried beneath an overthrust(?) at the west end of the Western Centennials, and the Odell Creek anticline at the west end of the Eastern Centennials.

A geochemical survey did not detect any evidence of precious metals or anomalous concentrations of base metals.

A thin bed of coal is in the Western Centennials. Its lenticularity, difficulty of access, and distance from railheads suggest that it cannot be mined economically.

Sources of building stone are in the study area, but localities are difficult to reach and are far from railheads.

A pumiceous ash bed is near the west end of the Western Centennials, but here too access is difficult and railheads are distant.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources and the alternatives considered - designation, nondesignation, or partial designation of the Centennial Mountains ISA as wilderness.

Table 4
Comparative Summary of Impacts - Centennial Mountains WSA
Alternatives 1, 2, 3, 4

Issue Topics	Proposed Action Partial Wilderness Alternative 1	All Wilderness Alternative 2	No Action/ No Wilderness Alternative 3	Partial Wilderness Alternative 4
Impacts on Wilderness Values	In area recommended for wilderness, all wilderness values preserved except for 1 acre impacted by a fence project. In area not recommended, naturalness, solitude, and scenic quality would be lost on 3,000 acres from logging. Grazing improvements (brush clearing, seeding, fencing) would eliminate naturalness on less than 1% of area. Mining would eliminate naturalness on 160 acres.	Existing wilderness values would be preserved on all but 240 acres. Natural values would be lost on up to 240 acres from expansion of mining operations. Solitude values would be enhanced by elimination of 975 vehicle use days per year.	ORV use in and around ARS lands will impact solitude and natural values on 3,000 acres. Logging activities will eliminate natural values and reduce solitude on 13,200 acres. Surface disturbance would reduce elk security cover and grizzly bear habitat with elk displaced and grizzly bears unable to use the areas. Siltation from logging disturbance could reduce trout populations by up to 50% on 6 miles of stream.	ORV use in and around ARS lands will impact solitude, natural values, and quality of primitive recreation opportunities on 3,000 acres. Logging activities will eliminate natural values and reduce solitude on 13,200 acres. Surface disturbance from logging will reduce elk cover and grizzly bear habitat with elk displaced and grizzly bears unable to use the area. Siltation from logging disturbance could reduce trout populations by up to 50% on about 6 miles of stream.
Impacts on Snowmobile Use	In area recommended for wilderness, snowmobile use in use areas would decrease from 1,100 visitor days annually to 0. Abundant substitute areas are available. No impact in area not recommended for wilderness.	Entire WSA would be closed to snowmobile use, including Odell Creek access trail, displacing 1,600 recreation visitor days annually; 6,350 acres presently used for play areas would be closed.	No impact. Snowmobiling use levels will continue at 1,600 visitor days annually.	No impacts in area recommended except for 1/4 mile in Odell Creek. In area not recommended, use will remain at 1,600 visitor days annually.
Impacts on Motorized Vehicle Access	In area recommended for wilderness, 100 annual visitor days would be eliminated with closure of one mile of vehicle ways. No impact in remainder of WSA.	100 annual visitor days of vehicle use associated with hunting would be eliminated.	No impact.	No impact from roads created for logging; routes would be closed after logging activities.
Impacts on Hunting use Levels	Hunting use levels would not change. Most existing vehicle access will remain open and vehicle-based hunters will be replaced by horseback or foot hunters.	Hunting use levels would drop from 2,680 to 2,580 as vehicle-based hunters are replaced by horse or foot hunters.	Hunting use levels would drop from 2,680 to 2,480 visitor days annually as logging-related impacts would displace some animals and temporarily make some areas inappropriate for hunting.	Hunting use levels would drop from 2,680 to 2,480 as a result of logging activities.

Impacts on Grazing Use Levels	No impact on grazing use levels. All proposed increases in AUMs would occur on National Forest lands not recommended for wilderness.	Designation of entire WSA would preclude several range projects on Targhee, causing projected 275-AUM increase to be forgone.	There would be no impact.	Grazing use may increase by 275 AUMs in area not designated.
Impacts on Fall Security Habitat for Elk	Logging on 3,000 acres would displace elk on 15% of their fall security habitat. In area recommended for wilderness, timber harvest restrictions on 10,200 acres would preserve existing elk fall security habitat in present condition.	Wilderness designation would preserve existing 13,200 acres of elk fall security cover that could otherwise be logged.	Logging of 13,200 acres of elk fall and migrational habitat could displace elk herd and could reduce or eliminate hunting opportunities during estimated 25-year logging period.	Logging would degrade 13,200 acres of elk habitat.
Impacts on Threatened and Endangered Species Habitat (Grizzly Bear)	Part of WSA recommended for wilderness (28,688 acres) would continue to offer undisturbed habitat for grizzlies that pass through the area. In area not recommended for wilderness, logging would render 3,000 acres unsuitable for grizzlies to occupy.	Grizzly bears would benefit from the alternative by closure of area to motor vehicles and preclusion of logging.	Grizzly bear habitat would be eliminated on 13,200 acres that could be logged. Motor vehicles would continue to impact bears.	Grizzly bear habitat would be adversely affected on 13,200 acres due to logging.
Impacts on Off-site and Onsite Aquatic Habitat	Aquatic habitats would benefit from preclusion of timber harvest in part of WSA recommended for wilderness. In part not recommended, timber harvest on 3,000 acres could eliminate 50% of cutthroat trout populations in 6 miles of stream due to increased sedimentation.	Aquatic habitats would be enhanced by preclusion of 13,200 acres from timber harvest and no downstream sedimentation would occur. Existing trout populations would be unaffected.	Logging impacts on 13,200 acres would cause up to 50% fish mortality on 6 miles of streams receiving increased sedimentation.	Accelerated erosion and siltation on 13,200 acres of logged area would result in loss of up to 50% of fish populations on 6 miles of stream.
Impacts on Timber Harvest	99.3 mmbf of timber would be forgone on 10,200 acres projected for harvest.	All timber harvest would be precluded. 2.64 mmbf annual yield would be forgone.	No impact.	No impact. 2.64 mmbf of timber would be available annually on 13,200 acres north of the Divide.
Impacts on Oil and Gas Exploration and Development	There would be no significant impact on exploration for oil and gas.	No significant impact is projected. Much of area has low probability for occurrence, and areas of moderate occurrence are inaccessible.	No impact.	No impact, as no development is expected.

Table 4 - continued
Comparative Summary of Impacts - Centennial Mountains WSA
Alternatives 5, 6, 7, 8

Issue Topics	Proposed Action Partial Wilderness Alternative 5	No Action/ All Wilderness Alternative 6	No Wilderness Alternative 7	Partial Wilderness Alternative 8
Potential Income Generated from All Economic Activities by Alternative	$473,658	$135,572	$918,788	$917,448
Impacts on Wilderness Values	In area recommended, naturalness and solitude would be affected by 1/2 mile of fence in Price Creek allotment, but would be enhanced by precluding logging on 13,200 acres. In area not recommended, naturalness, scenic values, and solitude would be diminished by ORV use at sheep station. Small amounts of mineral extraction on the Tin Cup claim would diminish naturalness somewhat.	Naturalness would be affected only by 1/2 mile of fence on Price Creek allotment. Naturalness and solitude would benefit by precluding logging on 10,200 acres. Snowmobile use is not expected to increase, thus no impact is anticipated. ORV use in and around sheep station would impact solitude and naturalness values on 3,000 acres.	ORV use in and around sheep station would impact natural values, solitude, and quality of primitive recreation on 3,000 acres. Logging activities would eliminate solitude and natural values on 13,200 acres. Surface disturbance from logging would reduce elk cover and grizzly bear habitat; both would likely be displaced from the area. Siltation from logging could reduce trout populations by up to 50% on six miles of stream.	There would be no impacts in the area recommended. Naturalness, solitude, and primitive recreation opportunities would be adversely affected on 13,200 acres.
Impacts on Snowmobile Use	There would be no impact. Snowmobile use levels would remain at 1,600 visitor days yearly.	There would be no impact.	No impact. Snowmobile use levels would continue at 1,600 visitor use days annually.	Snowmobile use would decline by 1,120 visitor days in Idaho. This use is expected to shift to the sheep station.
Impacts on Motorized Vehicle Access	100 visitor use days are expected to be lost annually in area recommended; no impact on area not recommended.	100 visitor use days would be lost yearly from permanent closure of a 2-mile seasonally closed road.	No impact. Roads created for logging on west end would be closed after logging activities.	There would be no impact.
Impacts on Hunting Use Levels	There would be no impact. Hunting use levels would remain at 2,680 visitor days annually.	There would be no impact.	Hunting would decline by 200 visitor days annually (from 2,180 to 1,980) due to logging activity on area not recommended.	200 visitor days of hunting would be lost annually in Montana.
Impacts on Grazing Use Levels	Some permittees may experience some inconvenience. Grazing use would be allowed at its present level. In area not recommended (Targhee) AUMs are expected to increase by 275.	Grazing levels could increase by 275 AUMs on area recommended.	Livestock grazing may increase by 275 AUMs in area not recommended.	There would be no change and no impact.

Impacts on Fall Security Habitat for Elk	Preclusion of logging would protect elk fall and migrational habitat on 13,200 acres.	Elk fall and migrational habitat would be protected on 13,200 acres.	Elk fall/migrational habitat would decrease on 11,700 acres. Displacement of elk herd could reduce or eliminate hunting opportunities for 25 years or more due to logging.	13,200 acres west of Matsingale Creek would be logged, displacing elk.
Impacts on Threatened and Endangered Species Habitat (Grizzly Bear)	Grizzly bear habitat would remain undisturbed on 29,904 acres, but human presence would displace bears from sheep station. Mining on Tin Cup claim would disturb bears crossing the area.	Grizzly bear habitat would be protected on 58,363 acres recommended for wilderness. In areas not recommended, bears would be affected by traffic on two access roads and at sheep station.	Grizzly bear habitat would be affected on 11,700 acres — effectively displacing the bear.	Logging would preclude grizzly bear occupation of 13,200 acres.
Impacts on Off-site and Onsite Aquatic Habitat	There would be no impact.	There would be no impact.	Up to 50% reductions in fish populations on 6 miles of stream could result from siltation caused by logging on 11,700 acres.	Logging activities on 13,200 acres could adversely affect up to half the fish populations on 6 miles of stream.
Impacts on Timber Harvest	A total harvest of 128.5 mmbf of timber on 13,200 acres would be forgone.	A total harvest of 128.5 mmbf of timber on 13,200 acres would be forgone.	About 1,500 acres of suitable timber would be forgone. An annual harvest of 128.5 mmbf would be available on 11,700 acres.	No impact: 128.5 mmbf of timber on 13,200 acres would be available.
Impacts on Oil & Gas Exploration and Development	Because of existing management restrictions, there would be no impact.	No impact, since management prescriptions preclude surface occupancy.	There would be no impact. No development is expected.	There would be no impact.
Potential Income Generated from All Economic Activities by Alternative	$348,056	$239,398	$790,335	$732,718

Source: U.S. Department of the Interior, Bureau of Land Management, 1990. Centennial Mountains Suitability Study/MFP Amendment/Environmental Impact Statement (Final), Dillon Resource Area, Butte District, Montana.

Local Social and Economic Considerations

Loss of timber harvest in the area recommended for wilderness could reduce area employment by seventeen jobs and annual income by $402,084.

Summary of WSA-Specific Public Comments

Public involvement occurred throughout the wilderness review process. During public review of the Draft Centennial Wilderness EIS, a total of 191 communications was received on the Centennial Mountains WSA. Wilderness designation, economics, the sheep station, unstable soils, aquatic habitat, and threatened and endangered species were the issues of greatest concern to those commenting. Table 5 shows relative interest in each issue. Issues that were discussed by fifteen or fewer individuals are not analyzed in this section.

Table 5
WSA Issues and Comments

Issue	Number of Comments
Wilderness Designation	150
Economics	80
Agricultural Research Station	60
Unstable Soils and Water Quality	43
Aquatic Habitat	38
Threatened and Endangered Species	34
Elk Habitat	20
Snowmobiling	19
Grazing	12
Visual Qualities	11
State Lands	10
Minerals	6
Hunting	4
Continental Divide Trail	4
Oil and Gas	1

Half the respondents supported wilderness designation for the Centennials. Most of these supporters felt the final environmental impact statement should recommend more land for wilderness designation. One-fourth of the respondents opposed wilderness designation. The remaining fourth indicated no preference.

The issue of economics received the greatest number of comments. For the most part, respondents questioned the scope of the analysis and suggested additional factors or a change in emphasis. Many mentioned below-cost timber sales; others focused on adverse impacts to local communities.

Many respondents raised the question of studying the sheep station for wilderness designation even though this issue was not discussed in the draft document. Those concerned argued that the sheep station should be included in the wilderness recommendation. Several letters cited case law and the National Environmental Policy Act as indicating that such lands as the sheep station should be included in a wilderness study.

Concern over unstable soils and water quality was expressed by many of those commenting. For the most part, they expressed concern that road building would have unacceptable impacts on these resources. Comments from the timber industry indicated that adverse impacts could be mitigated.

Many people expressed concerns for aquatic habitat outside the study area in Montana. Many mentioned that the Red Rocks National Wildlife Refuge and trumpeter swan habitat in Lima Reservoir depend on good watershed management in the Centennials. Grayling habitat in the streams draining the Centennials was also a concern.

Grizzly bear habitat as an extension of the Greater Yellowstone Ecosystem was mentioned by many respondents. The major concern was protecting such habitat to accommodate increases in population from Yellowstone National Park. Wolf, peregrine falcon, bald eagle, and several rare plant species were also mentioned.

Respondents mentioning timber values mainly expressed two divergent views. Many said the timber was of low quality and slow growing. Others contended the timber was of good commercial grade and easily harvested.

Most of the people mentioning elk habitat felt that logging would adversely affect fall migrations in the Montana/Idaho area. The timber industry claimed that such impacts could be mitigated.

Most of the comments mentioning snowmobiles requested that the Odell Creek snowmobile trail remain open for winter use. They stressed the low potential impact snowmobiling has on any other resource.

WSA-specific comments were received from six federal agencies, two Idaho state agencies, two Montana state agencies, and one county (Fremont, Idaho).

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	Total Acreage	No. of Owners (if Parcel has been Subdivided)[2]	Type of Ownership by Estate (federal, state, private, other)		Presently Proposed for Acquisition (Yes, No)	Preferred Method of Acquisition (Purchase, Exchange, other)	Estimated Cost of Acquisition[3]	
			Surface Estate	*Subsurface Estate*			*Land Costs*	*Processing Costs*
T. 14 S., R. 1 W., Sec. 36 Exchange SW1/4SW1/4	600	1	State	State	Y	Exchange		
T. 14 S., R. 2 W., Sec. 36 Exchange S1/2SE1/2	560	1	State	State	Y	Exchange	$10K	

(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

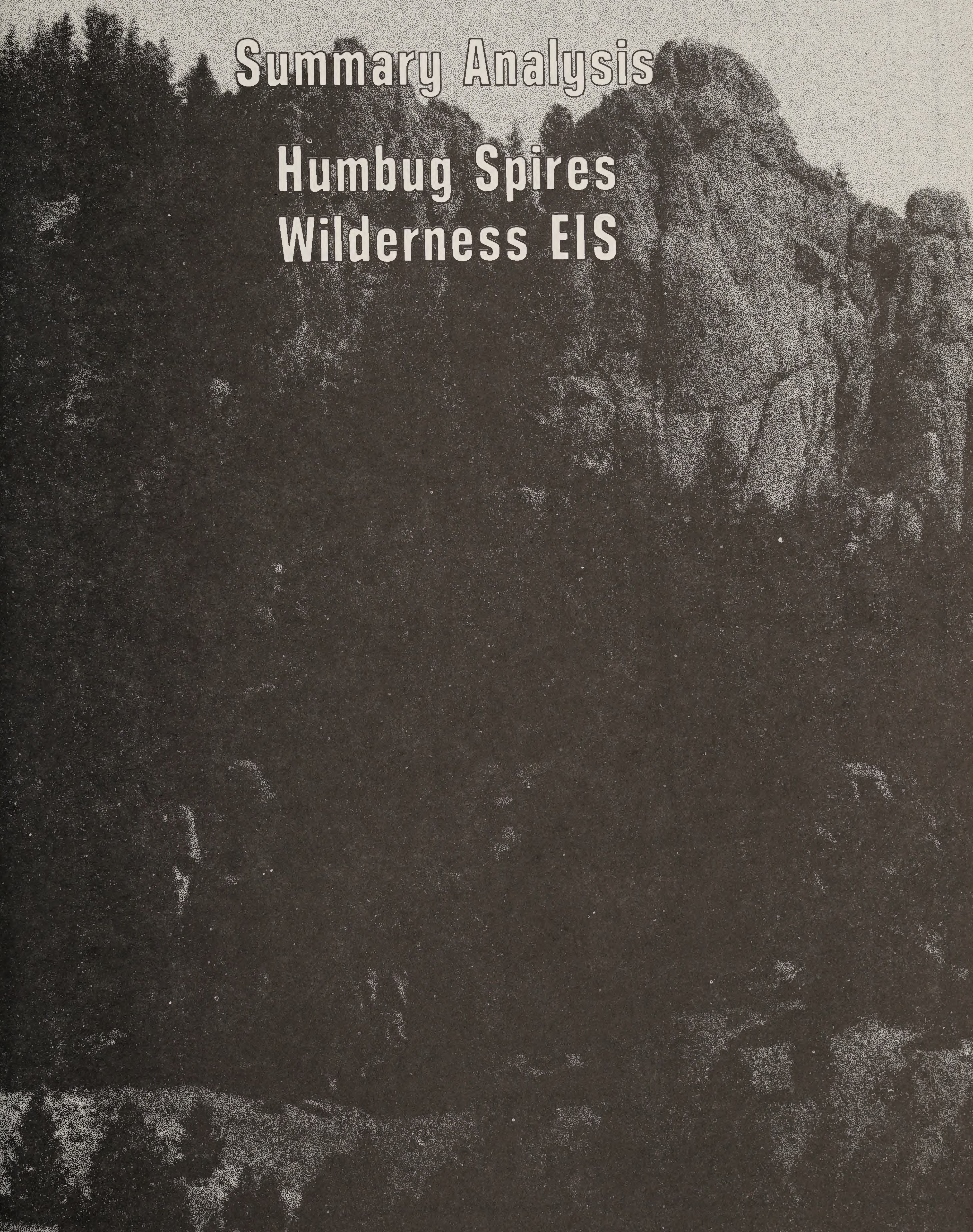
Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

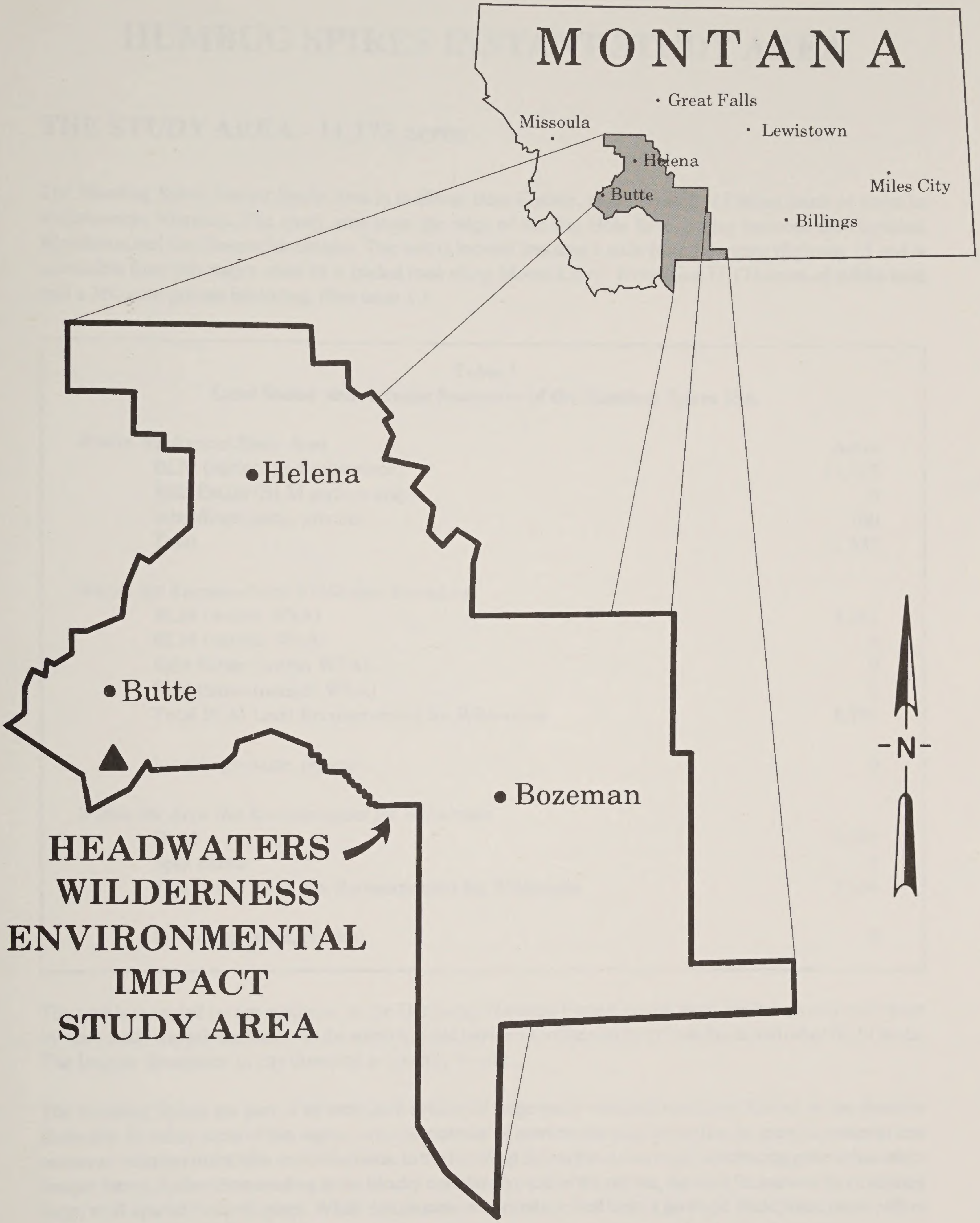
(2) If a parcel larger than that shown in the first column has recently been subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method only administrative costs of processing the exchange are shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both the land costs and the processing costs should be provided.

Summary Analysis

Humbug Spires Wilderness EIS




MONTANA
Great Falls
Missoula
Lewistown
Helena
Butte
Miles City
Billings
Helena
Butte
Bozeman
-N-
HEADWATERS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA

HUMBUG SPIRES
WILDERNESS
INSTANT STUDY AREA

HUMBUG SPIRES INSTANT STUDY AREA

THE STUDY AREA - 11,175 acres

The Humbug Spires Instant Study Area is in Silver Bow County, approximately 15 miles south of Butte in southwestern Montana. The study area is on the edge of the Big Hole River valley between the Highland Mountains and the Pioneer Mountains. The unit is located less than a mile from Interstate Highway 15 and is accessible from this major route by a graded road along Moose Creek. It contains 11,175 acres of public land and a 160-acre private inholding. (See table 1.)

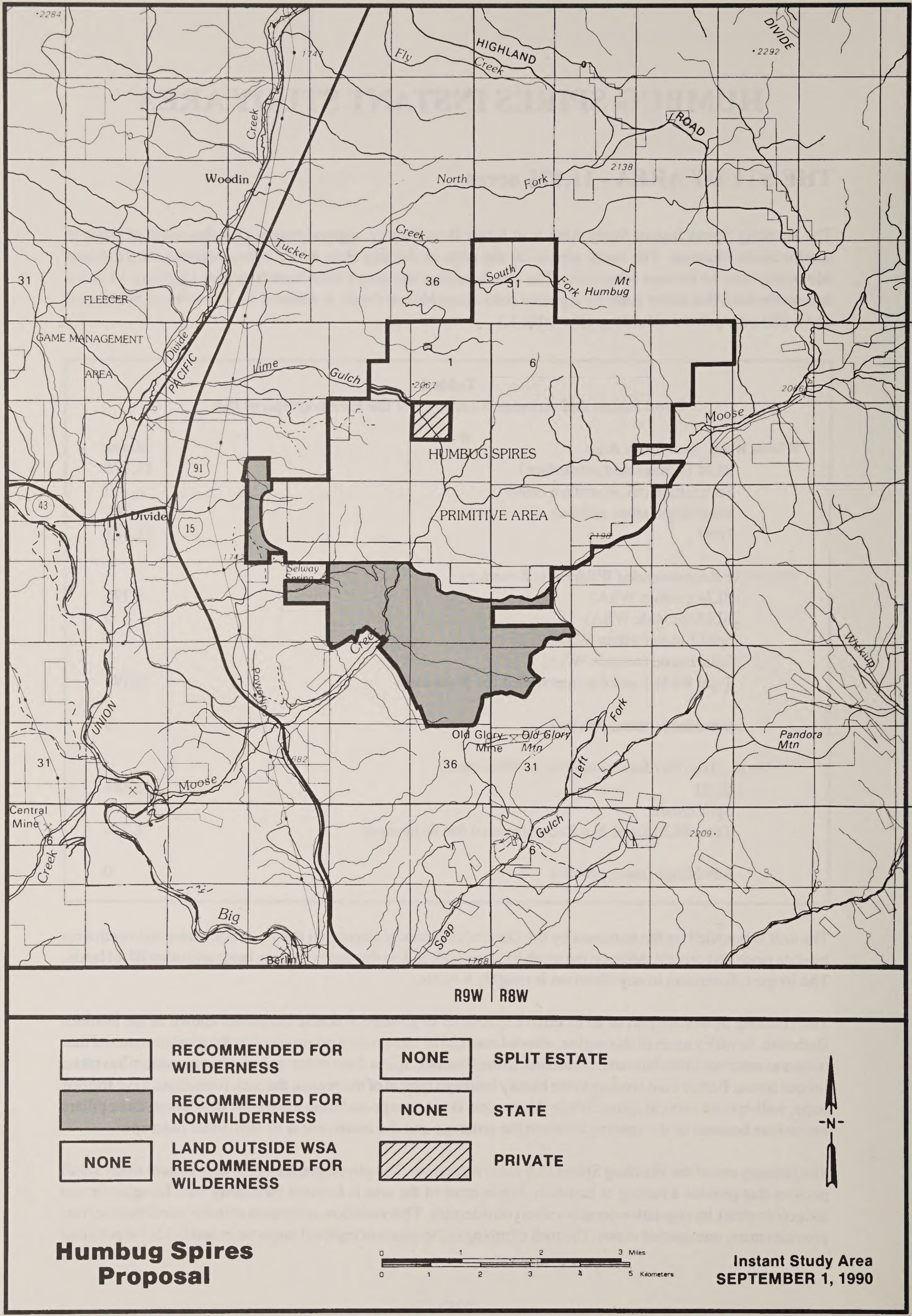
Table 1
Land Status and Acreage Summary of the Humbug Spires ISA

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	11,175
Split Estate (BLM surface only)	0
Inholdings (state, private)	160
Total	11,335
Within the Recommended Wilderness Boundary	
BLM (within WSA)	8,791
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	8,791
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	2,384
Split Estate	0
Total BLM Land Not Recommended for Wilderness	2,384
Inholdings (state, private)	0

The unit is bounded on the northeast by the Deerlodge National Forest; on the west, northwest and southwest by state lands and private lands; on the south by state land; and on the east by private lands and other BLM lands. The longest dimension in any direction is roughly 6 miles.

The Humbug Spires are part of an extensive system of large-scale volcanic intrusions known as the Boulder Batholith. In valley areas of this region, alluvial material of more recent origin overlies the granitic material that occurs as outcrops in the hills and mountains. In the Humbug Spires these outcrops' weathering pattern has taken unique forms. Rather than eroding to the blocky boulders typical of the region, the rock formations have formed huge, well-spaced vertical spires. While this process is not unexpected from a geologic standpoint, these pillars are unique because of the spacing between the outcrops and the massiveness of individual outcrops.

The primary use of the Humbug Spires ISA is for recreation. The physiography of the area creates many small pockets that provide a feeling of isolation. While most of the area is forested (primarily with Douglas fir and lodgepole pine), its vegetative density varies considerably. This variation, combined with the spires themselves, provides many unexpected views. The rock climbing in the area is of regional importance and holds the potential


HIGHLAND ROAD
DIVIDE
Fly Creek
Creek
Woodin
North Fork Creek
Tucker Creek
South Fork
Mt Humbug
FLEECER
GAME MANAGEMENT AREA
Divide
PACIFIC
Lime Gulch
HUMBUG SPIRES
PRIMITIVE AREA
Moose
Selway Spring
Creek
Powerline
UNION
Old Glory Mine
Old Glory Mtn
Left Fork
Pandora Mtn
Wickiup
Central Mine
Moose
Creek
Big
Berlin
Soap
Gulch
43
91
15
2284
1747
2292
2138
2067
2066
2198
1742
1682
2209
1768
31
36
31
1
6
36
31
31
6
6
T1N
T1S
T1S
T2S
R9W
R8W
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
PRIVATE
N
0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

Humbug Spires Proposal

Instant Study Area
SEPTEMBER 1, 1990

for even broader appeal. The spires offer a variety of climbing challenges; they are ideal for both beginning and advanced climbers.

The Humbug Spires contain outstanding wilderness characteristics and few or no conflicts with other resource uses. The area has been managed as a primitive area since 1972 to protect the resource values now qualifying it for possible wilderness designation.

The area was studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA) through the Humbug Spires Wilderness Suitability Report which was finalized in April 1984. The suitability report for this area analyzed five alternatives - one partial-wilderness alternative which is the recommendation of this report, no wilderness, all wilderness, and two other partial-wilderness options. The recommendation is to designate 8,791 acres of this ISA wilderness.

RECOMMENDATION AND RATIONALE -

8,791 acres recommended for wilderness
2,384 acres recommended for nonwilderness

The recommendation for the Humbug Spires ISA is to designate 8,791 acres wilderness and to release 2,384 acres for other uses. The all-wilderness alternative is considered the environmentally preferred alternative as it would result in the least change to the natural environment over the long term. The partial-wilderness recommendation would be implemented in a manner that would use all practical means to avoid or minimize environmental impacts.

The area recommended for wilderness includes all of the ISA except a portion totaling about one-third of a square mile on the extreme western edge of the area and a larger portion (roughly three square miles) to the south, in the Chicken Gulch section of the unit. Most of the original ISA - all of the area north of MacLean Creek and north of the south boundary of Section 14 of T.1 S., R.9 W. - would be designated wilderness.

The recommendation would include the geologically unique spires formations while excluding the more open sagebrush covered slopes and grasslands. The recommendation would also retain most of the areas with outstanding opportunities for primitive and unconfined recreation and solitude. It also would protect deer and elk by establishing a moderate-sized security area. Only a tiny portion of the area suitable for ORV use would be closed by wilderness designation. Most of the areas currently used for livestock grazing would be excluded under the recommendation. These areas include more of the open sagebrush covered slopes.

The recommendation would exclude from designation all of the areas with potentially valuable mineral deposits, with the exception of a limestone deposit in Section 11, Township 1 S, Range 9 W.

Despite its small size when compared to existing wilderness areas or other study areas, the Humbug Spires ISA would be a valuable addition to the National Wilderness Preservation System (NWPS). The scenic and recreational values of the spires are not duplicated in any other proposed or existing wilderness area. The experiences to be found when visiting the Humbug Spires are unique and cannot be compared to those possible anywhere else in the region.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: The unit appears to have been affected primarily by the forces of nature. Some areas show the impacts of humans, but these are minor and do not detract from the overall naturalness of the ISA. The overall impression is of an essentially pristine area.

Naturalness is somewhat affected by a reservoir and access trail in the northwestern portion of the study area, and by an access road to the inholding in Section 12. The unit also contains several cabin remains from early logging and prospecting activities. These are not in a habitable condition and add to the historic interest of the area. Several old logging areas are almost unrecognizable as such and have little impact on naturalness.

The original primitive area boundary encompasses the white granite spires, over fifty of which dominate the surrounding terrain. The immediate spires area contains tributaries to Moose Creek that run through small meadows, and stands of Douglas fir, aspen and ponderosa pine. Many vantages in the surrounding roadless area offer visitors panoramic views in all directions.

Solitude: Despite the limited size of the area, the Humbug Spires offer outstanding opportunities for solitude. Most of the area is isolated from outside sights and sounds and the exceptional topographic and vegetative diversity creates numerous opportunities for solitude throughout the area. A possible impact to solitude could occur in the northwestern portion of the unit if certain activities (e.g., chainsaw use) were to occur on the private inholding. In most parts of this study area, a visitor wandering up and down drainages and through the maze of spires will soon feel quite isolated and removed from the modern world.

Primitive and Unconfined Recreation: A variety of outstanding recreational activities are available in the Humbug Spires. The most notable characteristic of the unit is the white granite spires for which the area was named. The vertical and near-vertical igneous outcrops provide excellent opportunities for rock climbers. Climbing routes exist to satisfy any ambition, from beginners to advanced experts. A greater diversity of climbing opportunities is available in Humbug Spires than in most areas of this size in the western states.

The area also is used for hiking, fishing, horseback riding, geologic study, nature photography, and camping. In the fall, hunters seek mule deer and elk. Some spring bear hunting is also conducted. When all these recreational activities are added, the ISA offers outstanding prospects for primitive and unconfined recreation.

Special Features: The granite spires, nine of which rise 300 to 600 feet above their immediate surroundings, are the major attraction and special feature of the area. The largest, the Wedge, is over 600 feet in height. These towering rocks, which are 65-70 million years old, are important for rock climbing, photographic, and geologic study purposes.

Numerous wildlife species inhabit the area, including elk, mule deer, bighorn sheep, black bear and mountain lion. Small nongame species and predators such as bobcats and coyotes are common. Most drainages contain beavers. No threatened or endangered species are known to inhabit the ISA.

The contrasts in the area's vegetation - between the dry areas on the west side and the moist habitats along Moose Creek - are readily apparent.

The remains of several historic cabins associated with early prospecting and homesteading activities are scattered throughout the unit in five sites. Rather than detracting from the wilderness characteristics, these deteriorating structures add a picturesque quality to the area and can be considered a minor supplemental value.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecogystems: The Humbug Spires ISA is located in the Rocky Mountain Forest Province, the Douglas fir forest ecosystem, M3110/11.

The designation of this ISA, while it would certainly add unique scenic and recreational values to the National Wilderness Preservation System, would not add to the general ecosystem diversity of areas in the NWPS. There are currently 17 areas in the National Wilderness Preservation System of this ecotype and 22 other WSAs being considered for possible wilderness designation.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
NATIONWIDE				
Rocky Mountain Forest Province/ Douglas Fir Forest	14	1,202,867	12	98,328
MONTANA				
Rocky Mountain Forest Province/ Douglas Fir Forest	3	142,874	10	91,665

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers - Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 3
Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas areas	NWPS Areas acres	Other BLM Studies areas	Other BLM Studies acres
Great Falls	20	8,329,000	43	433,000
Billings	13	4,819,000	76	755,000

Balancing the geographic distribution of wilderness areas: Designation of the Humbug Spires ISA would not contribute significantly to balancing the geographic distribution of areas within the NWPS. The WSA is located within a region of abundant wilderness opportunities; Montana alone contains 3,442,165 acres in sixteen designated wilderness areas.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

The area is manageable as wilderness. It has been managed in a pseudo-wilderness condition since its designation as a primitive area in 1972. The private inholding (NW 1/4 of Section 12) could have a negative impact on manageability depending on the type of activities that might occur there. To ensure quality wilderness management conditions, BLM should try to acquire this 160-acre parcel.

Energy and Mineral Resource Values

Historically, large amounts of silver, lead, copper and gold were produced from areas adjacent to the Humbug Spires. There currently is no mining in the Spires. The U.S. Geological Survey and the Bureau of Mines surveyed the primitive area in 1978. These studies indicated that the mineral resource potential for the Humbug Spires is high for copper, lead, zinc, gold, and silver in the southern part of the area, and low for the remainder of the ISA. Mineral resource potential is high for metallurgical-grade limestone in the northern part of the area. Mineral resource potential for placer gold is moderate along Moose Creek in the central part of the area and low for the remainder of the area. Resource potential is low for geothermal energy and uranium for the entire area.

Just outside the western boundary on Upper Lime Gulch and in the northwest corner of Section 11 lies a deposit of metallurgical grade limestone. The owner has estimated that 10 million to 20 million tons of material suitable for smelter flux exists here.

No mineral resource potential exists for phospate, oil or gas.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation, nondesignation, or partial designation (under three options) of the Humbug Spires ISA as wilderness.

Table 4
Comparative Summary of Impacts - Humbug Spires ISA

Issue	Proposed Action - Partial Wilderness Alternative D	All Wilderness Alternative A	Partial Wilderness Alternative B	Partial Wilderness Alternative C	No Wilderness Alternative 2
Impacts on Wilderness Values	Wilderness values would be protected on 8,791 acres.	Values would be protected on entire ISA - 11,175 acres.	Values would be protected on 7,041 acres of original primitive area.	Values would be protected on 9,648 acres, to include MacLean Creek drainage.	No wilderness protection; short-term protection as primitive area would be retained.
Impacts on Wildlife Habitats	Some disruption of big game habitats would occur if a road were developed along MacLean Creek, plus possible short-term impacts to stream.	11,175 acres of security areas would be retained.	Habitats would remain secure only on 7,041 acres; some disruption likely.	Habitats would remain secure on 9,648 acres, including important range south of McaLean Creek.	No long-term protection of habitats; disruption likely at some point.
Impacts on Timber Production	Potential 38 mbf annual harvest (insignificant amount) would be forgone.	73.1 mbf per year would be removed from timber base.	Only potential harvest forgone would be 347 mbf annual potential that could not be cut under any alternative.	73.1 mbf per year would be removed from timber base.	Only potential harvest forgone would be 347 mbf annual potential that could not be cut under any alternative.
Impacts on Livestock Grazing and Range Management	Restrictions would apply to 8,791 acres; actual effect would be slight.	Restrictions on improvements would apply to 11,175 acres; little real effect.	Present situation would be maintained.	Restrictions on improvements would apply to 9,648 acres; little real effect.	Present situation would be maintained. Potential 445 commerical AUMs would remain available.
Impacts on Mineral Development	No development would be allowed on 8,791 acres. Only limestone deposits actually would be affected.	All deposits subject to nonimpairment regulations; no development allowed on 11,175 acres.	No nonimpairment regulations would apply; development is unlikely, however.	A small portion of deposits (on 2,607 acres) would be subject to nonimpairment regulations.	No nonimpairment regulations would apply; development is unlikely, however.

Impacts on Economics	Potential net loss (direct & indirect) would be $21,682.	Potential net loss (direct and indirect) would be $41,651.	There would be no net loss.	Potential net loss loss (direct and indirect) would be $41,651.	There would be no net loss.
Impacts on Recreation	8,791 acres would be closed to ORV use; primitive recreation would be enhanced.	Entire ISA would be closed to motorized vehicles; primitive recreation opportunities would be enhanced.	Original primitive area closed to all motor vehicles except for owner access to inholding; almost no other suitable areas would be closed.	Almost no suitable areas would be closed to motor vehicles; primitive opportunities would be enhanced on a large area (9,648 acres).	Almost no suitable areas would be closed to motor vehicles; present situation would be maintained.

Local Social and Economic Considerations

No known significant social consequences would occur under any alternative for this ISA. The total potential economic benefits forgone under the recommended alternative might amount to $21,682 - an insignificant sum compared to the overall economy of Silver Bow County.

While livestock grazing is permitted within wilderness areas, as are existing and some new range improvements, many operators still perceive wilderness designation as a threat to their livelihoods. Thus the elimination from designation of the areas on the south and west, which are more intensively used for grazing, largely addresses these ranchers' concerns without sacrificing the most significant wilderness qualities of the study area.

The same preferred-alternative boundaries exclude all of the area containing potentially valuable base metal sulfide deposits, thereby negating another objection to all-wilderness designation.

Summary of WSA-Specific Public Comments

The draft Humbug Spires Wilderness Suitability Report and EIS was mailed to the public in April 1980. One hundred six letters commenting on the Humbug Spires were received during the subsequent sixty-day comment period. In addition, public hearings were conducted in Butte and Bozeman on May 10 and May 21, 1980. Sixteen individuals attended the Butte hearing and nineteen attended the Bozeman hearing.

At those functions, seven people spoke in favor of designating all of the study lands as wilderness; two individuals testified about their concerns regarding access up the MacLean Creek road to privately owned lands southeast of the Humbug Spires.

Most written responses to BLM's draft proposal supported wilderness designation. Sixteen respondents favored wilderness designation without specifying which alternative they preferred. Twenty respondents favored alternative 1-A (all wilderness). Forty-seven endorsed alternative 1-C (a partial-wilderness option delineating some physiographic boundaries). The preferred alternative, 1-D, had not been formulated at the time of these hearings.

Six individuals commented without specifying whether they were for or against wilderness designation; six discussed concerns regarding possible reclassification of air-quality standards (which however is a matter entirely separate from wilderness designation: air-quality classification rests solely with the state of Montana, not with the federal government); eleven individuals opposed wilderness designation for the Humbug Spires. Montana Congressman Pat Williams favored designation of the area, using the original primitive-area boundaries. He also expressed concerns regarding the possible reclassification of air-quality standards.

The Montana governor's office recommended wilderness designation for the Spires but with several boundary modifications, and expressed concerns about continued grazing activities and the retention of Class II air-quality standards. The Montana Historical Society, Historic Preservation Office, recommended wilderness designation for the entire study area.

Appendix I

Estimated Cost of Acquisition of Non Federal Holdings Within Areas Recommended for Designation[1]

Legal Description (prior to any Subdivision)	**Total Acreage**	**No. of Owners (if Parcel has been Subdivided)[2]**	**Type of Ownership by Estate (federal, state, private, other)**		**Presently Proposed for Acquisition (Yes, No)**	**Preferred Method of Acquisition (Purchase, Exchange, other)**	**Estimated Cost of Acquisition[3]**	
			Surface Estate	*Subsurface Estate*			*Land Costs*	*Processing Costs*
T. 1 S., R. 9 W., Sec. 12 NW1/4	160	1	Private	Private	Y	Exchange	$3.0K	

(1) The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with characteristics similar to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

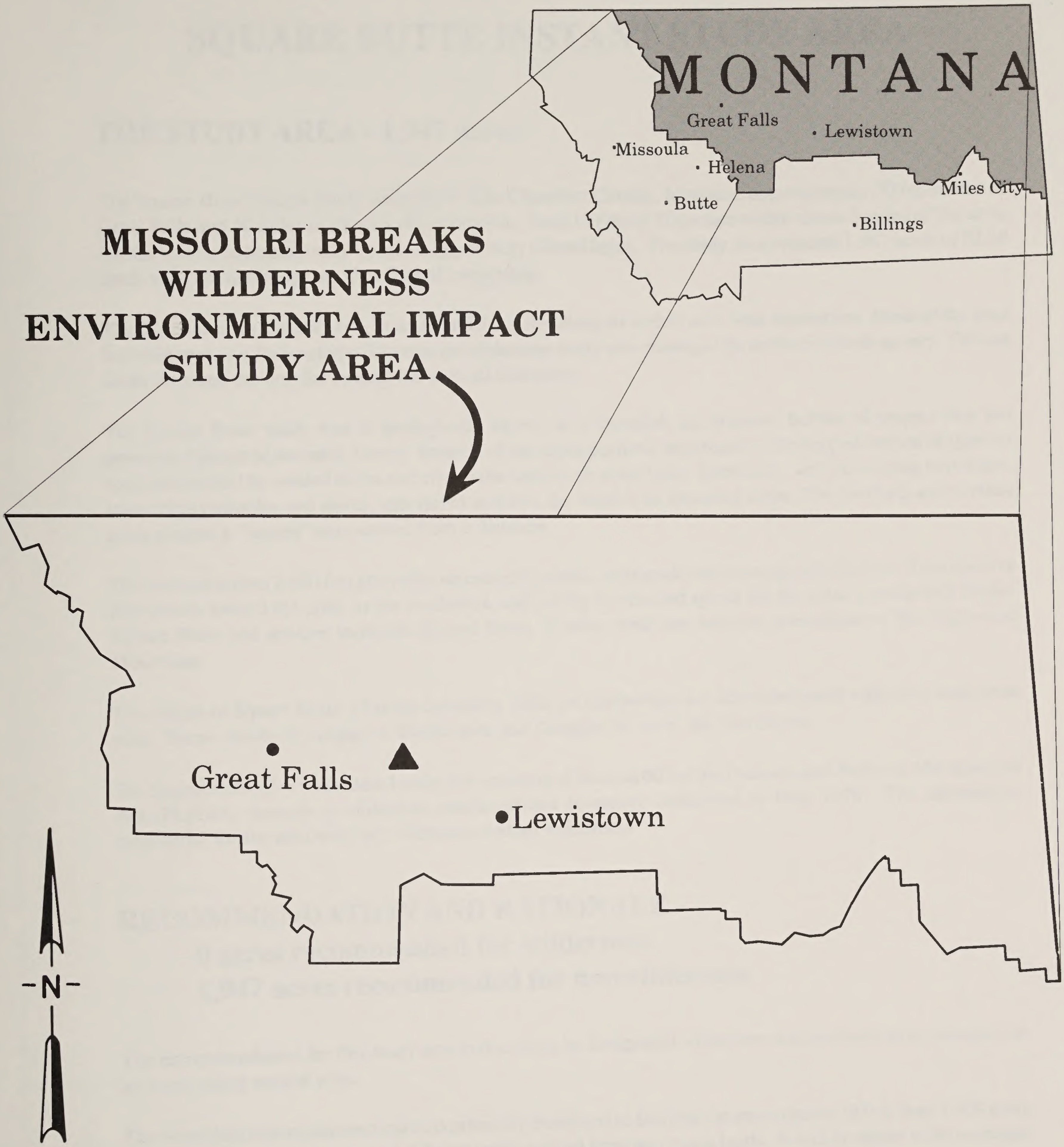
Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc.

(2) If a parcel larger than that shown in the first column has recently been subdivided or is jointly owned, list the number of owners that would be involved in any acquisition negotiations.

(3) Where exchange is the proposed acquisition method only administrative costs of processing the exchange are shown. Land costs would not be applicable. Where direct purchase is proposed, an estimate of both the land costs and the processing costs should be provided.

Summary Analysis

Square Butte ISA


MONTANA
Great Falls
Lewistown
Missoula
Helena
Butte
Billings
Miles City
MISSOURI BREAKS WILDERNESS ENVIRONMENTAL IMPACT STUDY AREA
Great Falls
Lewistown
N

SQUARE BUTTE WILDERNESS INSTANT STUDY AREA

SQUARE BUTTE INSTANT STUDY AREA

THE STUDY AREA - 1,947 acres

The Square Butte Instant Study Area (ISA) is in Chouteau County, Montana, approximately 50 miles east of Great Falls and 50 miles northwest of Lewistown. State Highway 80 passes within about 3 miles of the area, but the butte is accessible only by crossing privately owned lands. The study area contains 1,947 acres of BLM lands with no inholdings or other federal ownership.

The ISA measures 2 miles north to south and 2.5 miles along its widest east-west dimension. None of the tract is contiguous to a designated wilderness or wilderness study area managed by another federal agency. Private lands surround the unit for several miles in all directions.

The Square Butte study area is geologically known as a laccolith, an intrusive bubble of magma that has penetrated layers of the earth's crust. Erosion of the upper portions has created a flat-topped mound of igneous rock surrounded by eroded spires and ribs of the same rock at the base. Scenically, with its soaring buttresses, interesting pinnacles and spires, and varied textures, the butte is an imposing sight. The level top and vertical sides present a "square" appearance from a distance.

The formation rises 2,400 feet above the surrounding plains, with an elevation on top of 5,684 feet. Two massive fins stretch toward the plain to the southwest, and jutting towers and spires fill the butte's south-half flanks. Square Butte and another laccolith (Round Butte, 3 miles west) are outlying formations of the Highwood Mountains.

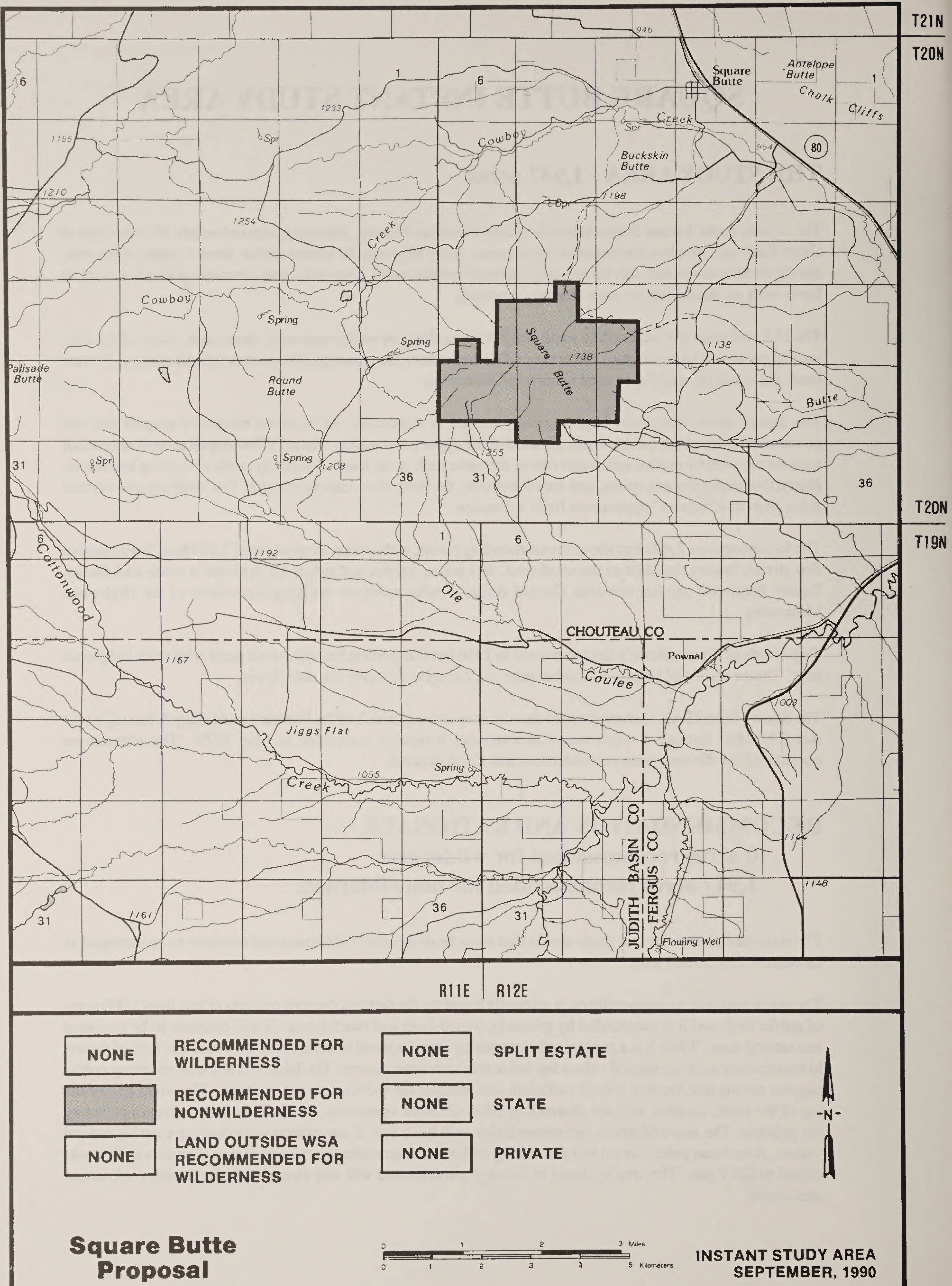
Two-thirds of Square Butte's flat top burned in 1956 but this portion has reforested itself with thick lodgepole pine. Dense stands of lodgepole, limber pine and Douglas fir cover the side slopes.

The Square Butte ISA was studied under the authority of Section 603 of the Federal Land Policy & Management Act (FLPMA) through a wilderness characteristics inventory completed in May 1979. The alternatives considered for the area were no wilderness and all wilderness.

RECOMMENDATION AND RATIONALE -
0 acres recommended for wilderness
1,947 acres recommended for nonwilderness

The recommendation for this study area is that it not be designated wilderness and continue to be managed as an outstanding natural area.

The nonwilderness recommendation is primarily based on the fact that the area consists of less than 2,000 acres of public land, and it is surrounded by privately owned farm and ranch lands. It will continue to be managed as a natural area. While it is a geologically interesting area, its small size, adjacent land uses and lack of threats to maintaining existing natural values has led to this recommendation. The BLM did not receive strong public support stating that the area was of sufficient size suitable for wilderness management. The small size of the top of the butte, coupled with the channeling effect of dense vegetation, preclude an outstanding opportunity for solitude. The nonwilderness recommendation will have few if any effects for retaining existing natural values. A no-lease policy for oil and gas leasing will not change under the existing status. The area will remain closed to ORV use. The area is closed to forestry activities and will stay closed with the retention of natural area status.


T21N
T20N
T20N
T19N
R11E
R12E
946
Square Butte
Antelope Butte
Chalk Cliffs
1
6
1
6
1233
1155
Spr
Creek
Spr
Cowboy
954
80
Buckskin Butte
1210
1198
Spr
1254
Creek
Cowboy
Spring
Spring
1138
Square Butte
1738
Palisade Butte
Round Butte
Butte
31
Spr
Spring
1208
1255
36
31
36
1
6
6
Cottonwood
1192
Ole
CHOUTEAU CO
Pownal
1167
Coulee
1003
Jiggs Flat
Spring
1055
Creek
JUDITH BASIN CO
FERGUS CO
1144
1148
36
31
31
1161
Flowing Well
NONE
RECOMMENDED FOR WILDERNESS
RECOMMENDED FOR NONWILDERNESS
NONE
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS
NONE
SPLIT ESTATE
NONE
STATE
NONE
PRIVATE
-N-
0
1
2
3 Miles
0
1
2
3
4
5 Kilometers

Square Butte Proposal

INSTANT STUDY AREA
SEPTEMBER, 1990

Table 1
Land Status and Acreage Summary of the Square Butte ISA

	Acres
Within Wilderness Study Area	
BLM (surface and subsurface)	1,947
Split Estate (BLM surface only)	0
Inholdings (state, private)	0
Total	1,947
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split Estate (within WSA)	0
Split Estate (outside WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings (state, private)	0
Within the Area Not Recommended for Wilderness	
BLM	1,947
Split Estate	0
Total BLM Land Not Recommended for Wilderness	1,947
Inholdings (state, private)	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATION

Wilderness Characteristics

Naturalness: Square Butte today appears much as it probably did centuries ago. Some areas show the impacts of humans, but these are minor and do not detract from the overall naturalness of the ISA. A minor post and pole cutover area on private land on the northeast side may slightly intrude on federal land; however this area is well revegetated and the imprint is almost unnoticeable. A vehicle trail to this site also is nearly invisible. Another vehicle way in the same quadrant enters public land for 200 yards and accesses a stock tank and an old log cabin foundation on the east side. This trail also has revegetated and is inconsequential as far as wilderness characteristics are concerned.

Square Butte appears to have been affected primarily by the forces of nature. If the unit were designated wilderness, no rehabilitation of human imprints would be necessary.

Solitude: Two factors the size of the unit and the vegetative composition on top of the butte, limit opportunities for solitude. Along much of the sides, solitude is attainable, primarily due to the pine and fir forests and the massed rock spires around the southern half of the area. Solitude is more difficult to obtain on the southwest slope and on top, however. The two rock walls dipping southwest from the summit channel visitors into a corridor. This effect is compounded because one of only two reliable sources of water is found between these ridges. Many parties may gravitate to this location to replenish water supplies.

The closely spaced lodgepole regrowth on the top of the butte tends to keep visitors on the perimeter of the summit. When the area covered by impenetrable lodgepole growth is subtracted from the relatively small size of the top (approximately 200 acres), little traversable land remains. The probability thus becomes high that the solitude of a party would be disturbed by any other parties that also were in the area.

Primitive and Unconfined Recreation: Square Butte offers several recreational opportunities. A population of Rocky Mountain goats can be found in the southern part of the area. The butte appears to be a key habitat for local breeding populations of prairie falcons and is important to at least six other species of raptors. With the plethora of visible fauna, wildlife viewing is an exceptional recreational opportunity. The density and diversity of wildlife also provide hunting possibilities.

Rock climbing is an additional recreational opportunity. The rock is mostly strong and fractured, allowing for attractive and safe (though typically short) climbs. Due to the massive rock outcrops and evidence of geological weathering, the butte also provides geologic sightseeing opportunities.

Square Butte receives about 250 visitors per year. It is mainly a day-use area, with most visitation originating locally.

Square Butte offers outstanding opportunities for primitive and unconfined recreational activities, though these activities tend to be limited by the small size of the area.

Special Features: Square Butte was designated an Outstanding Natural Area in August 1972. The unit contains geologic, vegetative, scenic, cultural, wildlife and recreational resources of high value.

The National Park Service recommended the butte for National Natural Landmark status because of its outstanding rock formations and features significantly illustrating geologic processes. Square Butte is a prime representative of igneous rock intrusion between sedimentary beds in the region. The butte also illustrates the radiation of a mass of basaltic dikes from an igneous central core. The subsequent erosion of the igneous rock into many convoluted and intricate forms is of strong interest geomorphologically.

Due to its vertical sides, the butte has never been grazed on top by domesticated animals. The summit flora are a vegetative relict and may have research value as a control against which to measure the alteration of grazed sites.

Indians appear to have used the Square Butte area sporadically, mainly for ceremonial purposes. They appear to have performed elevated burials on outlying rocks. Several ancient vision-quest sites, plus an absence of projectile points and lithic scatters on top, suggest that use on the platform was restricted. Conversely, heavy lithic and bone scatters at the southwest base and tepee rings along the dropoff north of the area suggest at least seasonal occupancy around the base.

Historically, Square Butte is significant for its sighting by members of the Lewis and Clark Expedition on May 26, 1805. The butte was named by the Stevens' expedition, reconnoitering for a transcontinental railroad route, in 1853. It figures prominently in several paintings by western artist Charles M. Russell.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Square Butte ISA (1,947 acres) is classified as being in the Great Plains Shortgrass Prairie Province/Lodgepole Pine Forest 3110/08.

The addition of this WSA would add to the general ecosystem diversity of areas in the NWPS. Square Butte is the only WSA representative of this ecotype being considered for possible wilderness designation.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers: The WSA is within a five-hour drive of two major population centers - Great Falls and Billings, Montana. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within five hours' drive of these cities.

Table 2
Ecosystem Representation (July, 1990)

Bailey-Kuchler Classification (Domain/Province/PNV)	NWPS Areas		Other BLM Studies	
	areas	acres	areas	acres
NATIONWIDE				
Shortgrass Prairie Province/Lodgepole Pine Forest 3110/08				
MONTANA				
Dry Domain/Great Plains Shortgrass Prairie Province/Lodgepole Pine Forest 3110/08	0	0	0	0

Table 3
Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	areas	acres	areas	acres
Great Falls	20	8,329,000	43	433,000
Billings	13	4,819,000	76	755,000

Balancing the geographic distribution of wilderness areas: Designation of the Square Butte ISA would not contribute significantly to balancing the geographic distribution of areas within the NWPS. The unit is located within a region of abundant wilderness opportunities; Montana alone contains 3,442,165 acres in sixteen designated wilderness areas, and seventeen presidentially endorsed areas containing 1,246,140 acres.

Manageability (the area must be capable of being effectively managed to preserve its wilderness character):

This ISA currently is managed as an outstanding natural area, but managing it as wilderness would be difficult primarily due to its small size. The area is not sufficiently large to make practicable its preservation and use as wilderness. Outstanding Natural Area (ONA) management, meanwhile, will be aimed at preserving and enhancing the area's characteristics and resources.

Energy and Mineral Resource Values

The ISA has low mineral potential for all metals, and no energy resource potential for coal, oil and gas. The likelihood of exploration activity or commercial development, based on available geologic information, is considered quite low. Except for the summit area, the ISA consists of steep, irregular terrain with few potential development sites. Exploration and development activities would be effectively prohibited under either ONA or wilderness management.

Impacts on Resources

The following comparative impact table summarizes the effects on pertinent resources for the alternatives considered - designation or nondesignation of the entire area as wilderness.

Table 4
Comparative Summary of Impacts - Square Butte WSA

Issue	Proposed Action (No Wilderness)	All-Wilderness Alternative
Impacts on Wilderness Values	ONA status will continue to protect wilderness values on 1,947 acres.	Wilderness values would be permanently on 1,947 acres.
Impacts on Oil & Gas and Minerals Development	There would be no impact. ONA status has a no-lease provision.	Exploration and development would be prohibited in the unit.
Impacts on Grazing	No impacts; topography precludes grazing use.	Potential increased visitation could cause damage to ranch properties.
Impacts on Wildlife	No impacts are likely.	Increased visitation could harm habitats.
Impacts on Recreation	Primitive uses would remain at current levels; use is not possible.	Primitive use could rise somewhat; no motorized use.
Impacts on Social Attitudes	No significant changes in local attitudes would occur.	Area landowners would oppose designation because of possible increased visitation.
Impacts on Timber	None; no harvest allowed under ONA policy.	No change; no cutting would be permitted.

Local Social and Economic Considerations

Because its small size effectively limits use and interest in Square Butte, the surrounding area will feel little economic impact whether the area is designated wilderness or retains its natural area designation. Wilderness designation conceivably might spark interest and create more user pressure on the area and on the surrounding landowners. Thus the retention of natural area status could be construed as a positive social impact.

The public-comment record makes it very clear that the adjacent landowners are willing to continue to grant access on request. But the record also demonstrates the concern these landowners have about any increase in numbers of visitors to the area. They fear physical damage to their property (e.g., the cutting of fences, harrassment of cattle, or spread of wildfire onto their land) and feel that too many visitors would spoil the wild attributes of the butte. A continuation of the status quo probably would not create additional visitation and would not disrupt the operations of the surrounding landowners.

Summary of ISA-Specific Comments

Public comment occurred throughout the wilderness-review process. The issues were reviewed with the help of thirty Montana Wilderness Association members in Kalispell on March 14, 1979, and with eight representatives of three local environmental groups in Great Falls on April 4, 1979. A public meeting on April 17 in Fort Benton was attended by fourteen persons. A thirty-day public-comment period followed the public meeting.

The major concern voiced in the public-comment record was that Square Butte be protected to maintain its natural values. Most respondents opposed wilderness designation on the basis that the influx of people lured by the promises of solitude and naturalness would degrade the butte's pristine qualities, would create conflicts with the surrounding private landowners, and might start fires that would spread onto private land.

An officer of the Montana Wilderness Association stated that the association was opposed to an agency's deciding against wilderness on the (somewhat paradoxical) grounds that designation would attract additional visitors who would degrade the area's wilderness characteristics. This respondent felt that visitor impacts were a function of management action and could be controlled. Another wilderness advocate felt that the legislative protection offered by designation was potentially helpful — but indicated that if natural-area status was adequately protecting the butte, there probably was no reason to change.

Respondents were about evenly disposed toward the subjects of public acquisition of adjoining private land for access into the butte. Some felt there were advantages to having BLM-controlled lands and access routes; others felt that, as long as the landowners could protect their lands and agreed to grant access, there was no reason for governmental action. A Great Falls Tribune editorial on April 30, 1979, summed up the majority view: "for Square Butte, keeping the status quo equals progress."

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